Model ID:RB23WABAS

DBG DPBU II

Service

Service Manual

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Safety Notice

Any person attempting to service this chassis must familarize with the chassis and be aware of the necessary safety precautions to be used when serving electronic equipment containing high voltage.

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Product Announcement:

This product is certificated to meet RoHS Directive and Lead-Free produced definition. Using approved critical components only is recommended when the situation to replace defective parts. Vender assumes no liability express or implied, arising out of any unauthorized modification of design or replacing non-RoHS parts. Service providers assume all liability.

Qualified Repairability:

Proper service and repair is important to the safe, reliable operation of all series products. The service providers recommended by vender should being aware of notices listed in this service manual in order to minimize the risk of personal injury when perform service procedures. Furthermore, the possible existed improper repairing method may damage equipment or products. It is recommended that service engineers should have repairing knowledge, experience, as well as appropriate product training per new model before performing the service procedures.

NOTICE:

- To avoid electrical shocks, the products should be connect to an authorized power cord, and turn off the master power switch each time before removing the AC power cord.
- To prevent the product away from water or exploded in extremely high humility environment.
- To ensure the continued reliability of this product, use only original manufacturer's specified parts.
- To ensure following safety repairing behavior, put the replaced part on the components side of PWBA, not solder side.
- To ensure using a proper screwdriver, follow the torque and force listed in assembly and disassembly procedures to screw and unscrew screws.
- Using Lead-Free solder to well mounted the parts.
- The fusion point of Lead-Free solder requested in the degree of 220°C.

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Go to cover page

This model combine with three platform. See below explanation.

1.Scaler IC:RTD2482D used in VGA ,DVI and HDMI port Using simply word to define it(1A1D1H)

2.Scaler IC:RTD2482 used in VGA and HDMI port. Using simply word to define it(1A1D)

3.Scaler IC:RTD2482RD used in VGA ,DVI and HDMI port .Using simply word to define it.(1A1D1H+OD)

The product specification demonstrate all of the model:

1.1 SCOPE

This document defines the design and performance requirements for a 23W inch diagonal , flat panel monitor . The display element shall be a 1920x1080 resolution TFT-LCD (Thin Film Transistor Liquid Crystal Display).16.7M color(Hi-FRC) images are displayed on the panel.Video input signals are analog RGB (0.7Vp-p). When the system is powered-on , previously stored screen parameters for a pre-defined mode will be recalled if the operating mode is one of stored in memory(2213 factory timing mode).This monitor operates normal by non-interlaced mode.

DDC (Display Data Channel) function is DDC2Bi compliance. Power saving function complies with the DPMS(Display Power Management Signaling) standard.

1.2 GENERAL REQUIREMENTS

1.2.1Test Condition

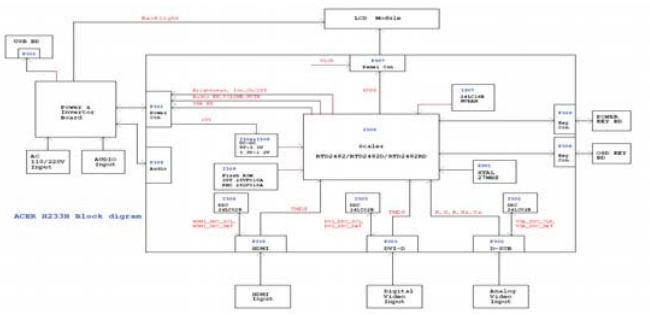
Brightness level & contrast level max. Full white pattern test mode following spec. Warm up more than 1 hr, ambient light < 10 Lux , Luminance meter CA210 or BM7 or same equipment

1.2.2Test Equipment

The reference signal source is a calibrated Chroma 2237 video generator or higher. The use of other signal generators during qualification and production is acceptable provided the product complies with this specification.

1.3 ELECTRICAL

This section describes the electrical requirement of the monitor.



The LCD monitor consists of an interface board, a power board and inverter board, a function key board.

The interface board will house the flat panel control logic , brightness control logic, audio function control (option), key function control, DDC and DC to DC conversion to supply the appropriate power to the whole board and LCD flat panel , and transmitting LVDS signals into LCD flat panel module to drive the LCD display circuit .

The power board will support main power DC5V to interface board, and drive the two CCFLs (Cold Cathode Fluorescent Tube).

The interface board provides the power ON / OFF control over the power board.

Whole monitor to control the DPMS LED indicator to function key board.

MONITOR SPECIFICATIONS

ITEM		SPEC
Signal Input (Analog)	Frequency	Analog: H:31kHz~94kHz V:50Hz~75Hz
	Pixel clock	205MHz (Max)
	Video Input	Analog 0.7Vp-p
	Display Pixels	640 x 480 (VGA) ~ 1920 x 1080
	Sync Signal	Separate SYNC for TTL (N or P)
Signal Input (Digital)	Frequency	Digital: H:31kHz~94kHz V:50Hz~75Hz
	Pixel clock	165MHz (Max)
	Video Input	Analog 0.7Vp-p Input Impedance 75Ω
	Display Pixels	640 x 480 (VGA) ~ 1920 x 1080
Connector	AC Input	AC100V ~ AC240V 10% 50/60Hz, 3 pin AC power cord
	Input connector	D-SUB 15 pin, DVI-D & HDMI
	Audio Jack (OPTIONAL)	Audio input 3.6Φ
Power Comsumption	AC in 100V~240V	Active 50W(non-USB)/60W(w/USB), power saving < 2W
User's Control	Front	Input ,E-KEY, Auto Adjust ,Menu Adjust(-), Adjust(+),Power
	OSD	Contrast, Brightness, Position, Clock, Phase, Analog/Digital, Reset, Color, Language select, etc.
Pre-Defined Timing	Factory	13
	User	9
Plug and Play		VESA DDC2Bi
Power Saving		VESA DPMS
Input Signal Counter Tolerance		≦H 1 kHz, ≦V 1 Hz

1.3.1 Interface Connectors

1.3.1.1 Power Connector and Cables

The AC input shall have an IEC/CEE-22 type male power receptacle for connection to mains power. The power cord shall be with length of 1.8 0.005 meters.

1.3.1.2 Video Signal Connectors and Cable

The signal cable shall be 1.8 0.005 meters long. At the end of the cable shall be a molded-over, shielded, triple row, 15 position, D-subminiature connector. The CPU connection shall have captive screw locks, which will be adequate for hand tightening. The monitor connection may use small screws.

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Connector Pin Description		
D-SUB Pin Description		
Pin	Name	Description
1	Red-Video	Red video signal input.
2	Green-Video	Green video signal input.
3	Blue-Video	Blue video signal input.
4	GND	Ground
5	DDC-GND	DDC ground for the VESA DDC2Bi function.
6	Red-GND	Analog signal ground for the Red video.
7	Green-GND	Analog signal ground for the Green video.
8	Blue-GND	Analog signal ground for the Blue video.
9	+5V	+5V input from host system for the VESA DDC2Bi function.
10	Sync-GND	Signal ground
11	GND	Ground
12	DDC_SDA	SDA signal input for the VESA DDCB2i function.
13	H-SYNC	Horizontal signal input from the host system.
14	V-SYNC	Vertical signal input from the host system.
15	DDC-SCL	SCL signal input for the VESA DDC2Bi function.

DVI-D Pin Assignment

Pin	Signal	Pin	Signal	Pin	Signal
1	RX2-	11	GND	21	NC
2	RX2+	12	NC	22	GND
3	GND	13	NC	23	RXC+
4	NC	14	5V	24	RXC-
5	NC	15	GND		
6	SCL	16	HP		
7	SCA	17	RX0-		
8	NC	18	RX0+		
9	RX1-	19	GND		
10	RX1+	20	NC		

HDMI *Type A Connector Pin Assignment*

PIN	Signal Assignment
1	TMDS Data2+
3	TMDS Data2–
5	TMDS Data1 Shield
7	TMDS Data0+
9	TMDS Data0–
11	TMDS Clock Shield
13	CEC
15	SCL
17	DDC/CEC Ground
19	Hot Plug Detect

PIN	Signal Assignment
2	TMDS Data2 Shield
4	TMDS Data1+
6	TMDS Data1–
8	TMDS Data0 Shield
10	TMDS Clock+
12	TMDS Clock–
14	Reserved (N.C. on device)
16	SDA
18	+5V Power

1.3.1.3 Audio Jack (option)

This jack shall connect the audio input from host computer.

1.3.2 Video Input Signals

NO.	Symbol	Item	Min	Normal	Max	Unit	Remark
1	Fh	Scanning Horizontal Frequency	31		94	kHz	Minimum Range
2	Fv	Scanning Vertical Frequency	50		75	Hz	Minimum Range
3	Vih	Hi Level Input	2		5		Note 1)
4	Vil	Low Level Input	0		0.8	V	Note 1)
5	Video	RGB Analog Video Level	0.0	0.7	1.0	V	75? to Ground

Note1) SchmittTriggers Input , Supported 3.3V device H (& V) sync output from PC

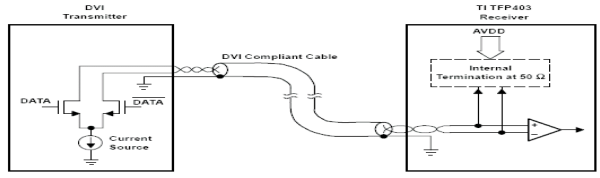

Figure 14. TMDS Differential Input and Transmitter Connection

Figure 15. TMDS Inputs

1.3.2.1 Video Signal Amplitudes

The three video inputs consist of Red , Green , and Blue signals, each with its own coaxial cable terminated at the monitor. These video signals are analog levels, where 0 V corresponds to black , and 700 mV is the maximum signal amplitude for the respective color, when each signal is terminated by a nominal 75.0 ohms .For a given monitor luminance levels are measured using this defined video amplitude driving a monitor meeting the termination requirements . The signal amplitude is not to be readjusted to compensate for variations in termination impendence.

1.3.2.2 Video Signal Termination Impedance

This analog video signal termination shall be 75Ω 1% which shall be resistive with a negligible reactive component.

1.3.2.3 Synchronization (Sync) Signals

The Horizontal Sync (HS) TTL signal is used to initiate the display of a horizontal line. HS may be either active high or active low, depending upon the timing .The Vertical Sync (VS) TTL signal is used to initiate the display of a new frame .VS may be either active high or active low, depending on the timing .

1.3.2.4 Sync Signal Levels

The monitor must accept sync signals from both 3.3 and 5 volt TTL logic families.The inputs shall sense a logic 0 when the input is 0.8 volt or less and shall sense a logic 1 when the input is 2.0 volts or greater. In addition to these level requirements , there shall also be a minimum of 0.3 volt hysteresis provided for noise immunity (typically by using a Schmitt Trigger input). That is , the input level at which the monitor actually detects a logic 0 shall be at least 0.3 volt lower than the level at which it actually detects a logic 1.If the monitor sync processing circuits are designed around the 3.3 volt logic family ,then the sync inputs must be 5 volt tolerant .

1.3.2.5 Sync Signal Loading

TTL input loading shall be equivalent to one TTL input load. When logic 0 is asserted by a sync input , the maximum current source from any single monitor sync input to the driver is 1.6 mA .When logic 1 is asserted , the maximum current source from the driver to any single monitor sync input is 400 uA .

1.3.2.6 Abnormal Signal Immunity

The monitor shall not be damaged by improper sync timing , pulse duration , or absence of sync , or abnormal input signal amplitude (video and/ or sync too large or too small) , or any other anomalous behavior of a graphics card video generator when changing modes , or when any combination of input signals is removed or replaced . Additionally , under these conditions , the monitor shall not cause damage to the driving source .

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1.3.3 User Controls and Indicators

1.3.3.1 Power On / Off Switch

The monitor shall have a power control switch visible and accessible on the front of the monitor . The switch shall be marked with icons per IEC 417 , # 5007 and # 5009.The switch shall interrupt the DC supply to the monitor.

1.3.3.2 Power Indicator LED

The monitor shall make use of an LED type indicator located on the front of the monitor . The LED color shall indicate the power states as given in Table 1.

Table 1

Function	LED Color
Full Power	White color
Sleep	Amber color

1.3.3.3 On-Screen Display

The Wistron On Screen Display system shall be used, controlled by a Menu button. If the buttons remain untouched for OSD turn off time while displaying a menu, the firmware shall save the current adjustments and exit. Also, if the video controller changes video mode while the OSD is active, the current settings shall be save immediately, the OSD turn off, and new video mode is displayed.

Key	When No OSD display	OSD Display
MENU	Menu Display	1.To select the OSD sub-Menu 2.Enter select
>	Speaker Volume/Plus (with Audio)	1.Right or Down selection of the OSD menu 2.Increase the value after bar selected
<	Speaker Volume/Minus (with Audio)	1.Left or up selection of the OSD menu 2. Decrease the value after bar selected
Auto	Auto Adjust Function	Menu exit
e	Trigger eColor Management	Trigger eColor Management
Input	Input source select	Input source select

ITEM	Content
Volume	To increase or decrease the sound level
Brightness	Adjust backlight luminance of the LCD panel
Contrast	Adjust gain of R,G,B signal
Clock	Adjust the ratio of dividing frequency of the dot clock
Focus	Adjust the phase of the dot clock
H.Position	The active screen is horizontally move right and left
V.Position	The active screen is vertically move up and down
Color temp	Select three kinds of modes(Warm, Cool, User)
OSD Language	1.USA-select the language among English, French, Italian, Deutsch, Spanish, 繁體中文, 簡體中文, 日本語 2.EMEA-select the language among English, French,Italian, Deutsch, Spanish, Russian, Dutch, Finnish
OSD Position	Adjust the OSD menu position
OSD Timeout	The OSD menu show time
Setting	The setting of Input Source, Wide Mode, DDC/CI
Information	It will show resolution, the frequency of horizontal/vertical synchronizing and S/N
Reset	All data copy from shipment factory data

1.3.4 Monitor Modes and Timing Capability

1.3.4.1 Format and Timing

The monitor shall synchronize with any vertical frequency from 50 to 75 Hz , and with any horizontal frequency from 31 to 94KHz. If the input frequency is out of the above – specified range, the monitor shall display a warning screen indicating that the input frequency is out of range. Under no circumstances shall any combination of input signals cause any damage to the monitor .

1.3.4.2 Factory Assigned Display Modes

There are 13 factory pre-set frequency video modes. These modes have a factory pre-set for all characteristics affecting front-of-screen performance. When the system is powered on, previously stored screen parameters for a pre-defined mode will be recalled if the operating mode is one of those stored in memory. If the operating mode is not one of those stored in memory, the monitor CPU will select the PRESET timing for a mode that is the next lowest in horizontal scanning frequency to the mode being currently used. The screen parameters may be adjusted by the use of the front bezel controls and then may be saved as a user defined mode. The monitor shall include all the preset video timings shown in the following page.(Please see Note. (3))

1.3.4.3 Mode Recognition Pull-in

The monitor shall recognize preset modes within a range of 1KHz whichever is less for horizontal ; and within 1Hz for vertical.

1.3.4.4 User Display Modes

In addition to the factory pre-set video modes, provisions shall be made to store up to 9 user modes. If the current mode is a user mode, the monitor shall select its previously stored settings. If the user alters a setting, the new setting will be stored in the same user mode. The user modes are not affected by the pre-set command. If the input signal requires a new user mode, storage of the new format is automatically performed during user adjustment of the display (if required).(Please see Note.(4))

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PRESET PC TIMINGS (ANALOG AND DIGITAL INPUTS)

Mode	Resolution (active dot)	Resolution (total dot)	Horizontal Frequency (KHz)	Vertical Frequency (Hz)	Nominal Pixel Clock (MHz)	Aspect Ratio
VGA	640x480@60Hz	800 x 525	31.469	59.941	25.175	4:3
MAC	640x480@66.66Hz	864x525	35	66.66	30.24	4:3
VESA	720x400@70Hz	900x449	31.469	70.087	28.322	1.8
SVGA	800x600@56Hz	1024 x 625	35.156	56.250	36.000	4:3
	800x600@60Hz	1056 x 628	37.879	60.317	40.000	4:3
XGA	1024x768@60Hz	1344x806	48.363	60.004	65.000	4:3
	1024x768@70Hz	1328x806	56.476	70.069	75.000	4:3
VESA	1152x864@75Hz	1600x900	67.5	75	108	4:3
SXGA	1280x1024@60Hz	1688x1066	63.981	60.020	108.000	5:4
WXGA	1280x800@60Hz	1680x831	49.702	59.810	83.500	16:10
WXGA+	1440x900@60Hz	1904x931	55.935	59.887	106.500	16:10
HD	1920x1080@60Hz	2576x1120	67.158	59.963	173.000	16:9
	1920x1080@60Hz	2200x1125	67.500	60.000	148.500	

PRESET VIDEO TIMING(DIGITAL INPUT)

CEA-861 -c-code	H-Active	V-Active	I/P	H-Total	H-Back Porch	V-Total	V-Back Porch	H-Freq. (kHz)	V-Freq. (Hz)	P-Freq. (MHz)
1	640	480	p	800	48	525	33	31.5	60	25.2
2,3	720	480	p	858	60	525	30	31.5	60	27.027
4	1280	720	p	1650	220	750	20	45	60	74.25
5	1920	1080	i	2200	148	1125	15	33.75	60	74.25
16	1920	1080	p	2200	148	1125	36	67.5	60	148.5

Analog input (VGA) treats all timings as PC-timings.

1.3.5 Controller Requirements

1.3.5.1 General Requirements

The monitor shall include a controller capable of converting the analog RGB signal from a standard 1920x1080 resolution video controller in the CPU to a signal which can be displayed on the panel. The controller will include a PLL,A/D converters, LVDS transmitter and other circuitry necessary to perform its function. The PLL shall be stable enough to ensure that a static image from the CPU is placed in the same physical location on the flat panel in each frame.

1.3.5.2 Video Stretching

The monitor shall contain provisions to “stretch” the video signal, so that an input signal from the computer in any resolution smaller than 1920 x 1080 is automatically expanded to fill the entire screen.

1.3.5.3 Panel Timing and Interface

The controller supplied with the monitor shall control all panel timing. This controller shall adequately insulate the monitor from the computer, so that no possible combination of input signals from the computer shall cause damage to the flat panel or any other component of the monitor. The LCD panel interface shall support the TFT standard.

1.3.6 DC - AC Inverter Requirements

The DC-AC inverter is on the power board. The frequencies used by the DC-AC inverter used to power the backlight shall be chosen so as to prevent any noticeable effects on the flat panel (such as a rolling effect).

1.3.7 Power Supply Requirements

The AC to DC converter power supply for the monitor shall be an external AC to DC converter ”brick” This brick shall have an IEC receptacle for main power input and a pin - in ---socket for DC power out. The brick shall provide sufficient power for both the monitor and the backlight assembly, and shall meet requirements specified in Table 2.

Table 2
AC to DC Converter Requirements

Input Voltage Range	The operating range shall be from 90 to 132 and 195 to 265 AVC sinusoidal for all models specified.
Input Frequency Range	Input power frequency range sha;, be from 47.5 to 63 Hz over the specified input voltage range.
Power Consumption	Power consumption for the monitor shall be less than 55W over the specified voltage and frequency ranges. In suspend or sleep mode the power consumption will be less than 2W.
Line Fuse	The AC input shall be fused and become electrically open as a result on an unsafe current level. The fuse many not be user replaceable.
Initial Cold Start	The power supply shall start and function properly when under full load, with worst case conditions of input voltage, input frequenct, operating temperature, and cold backlight lamps.
Inrush Current	The inrush current must be limited to 30A when operated at 120VAC, and 50A when operated at 220VAC. Inrush current is measured at an ambient temperature of 25°C, with the unit temperature stabilized in the power-off.
Hot Start Cycle	The power supply shall be damaged when switched ON for one second and OFF for one second for seven consecutive after operating for one hour at full load, 25°C, and nominal input line voltage.
Under Voltage	The power supply shall contain protection circuitry such that the application of an input voltage below the minimum specified in this table shall not cause damage to the power supply unit nor cause failure of the input.
Line Transient	The power supply shall operate within IEC 801-4 (± 1KV) and IEC 801-5 (± 2KV) for the domestic U.S. version. The UPS power supply shall operate and comply with CE mark.

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1.3.8 Display Communications Channel

The monitor assembly shall provide a display communications channel that conforms to VESA DDC2Bi hardware requirements. This configuration shall contain the 128-byte (HDMI 256-byte)EDID file as specified by VESA EDID standard. The monitor should not write to the EDID file for the first two minutes of operation following power-up UNLESS some action taken by the user or the host CPU forces the write (for instance, requesting the serial number via the OSD). Furthermore, it is recommended that CMOS switches be incorporated to isolate the DDC IC from outside connections while the EDID Fault Management is being updated. This is to prevent corruption of the data by attempts to read the data while it is being changed.

1.3.9 Firmware Update Function (same ISP function)

The update firmware need through from the D-Sub connector, use DDC I2C bus to do update firmware.

1.4. ELECTRICAL

1.4.1 General Requirements

The panel used as the display device shall be an 1920x1080 resolution 23W, TFT LCD. This panel shall be approved for use in this monitor.

1.4.2. Panel Timings

The controller included with the monitor shall translate all video timings from the CPU that meet the timing requirements listed in Panel specification into timings appropriate for the panel. Under no circumstances may the controller supply the panel with timings that may result in damage . The controller shall insulate the panel from the CPU , so that the panel shall always be driven per it's own specification regardless of the timings being sent from the CPU.

1.4.3.Polarizer Hardness

The outer face of the front polarizer panel shall be covered with a coating with a # 3 hardness value .

1.4.4.Backlight Requirements

1.4.4.1 General Requirements

The backlight assembly shall be designed to support field replacement at the customer site or authorized service center.The lamps shall have a continuous operating life of at least 50,000 hours at 25℃. The operating life is defined as having ended when the illumination of light has reached 50% of the initial value. The lamps shall extend a sufficient amount from the edge of the light guide that sputtering over the life of the lamps shall not cause degradation of the luminance uniformity (such as non-illuminated bands along the edges of the display).

1.4.4.2 Lamps Startup Time

The backlight lamps shall start about 2 sec of the time the monitor power switch is pressed or the monitor is restarted from a power - down mode . The starting time shall stay about 2 sec. for the minimum expected life of the lamps.

Test conditions are as follows :

Ambient Light ----------	< 1.0 lux
Temperature----------	10℃
Inactive Time ----------	> 24 hours

1.4.5.Defects

1.4.5.1Visual Inspection

The LCD panel shall be inspected with all pixels set to white, black, red , green , and blue. The color variation, brightness variation , and overall appearance must not be perceived as poor quality .Areas and / or parameters considered questionable shall be subjected to detailed measurements .

1.4.5.2 Display Degradation

Over the life of the product , variation of the parameters specified in Panel specification shall be maintained within reasonable limits. The panel must not exhibit any significant defects while in operation (excluding the CCFL operation).This does not in any way change the warranty given by the panel manufacturer .

1.4.5.3 Light Leakage

Except for the active display area , there shall be no light emission visible from any angle from any other part of the display . For this test , the ambient illumination must follow panel's specification.

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1.4.5.4 Allowable Defects

No cosmetic defects are allowed except those specified below. The conditions of visual inspections are as follows :

For 23 series

Viewing distance is to be approximately 35-50cm

Ambient illumination is to be 300 to 700 lux. Viewing angle shall be at 90 degree. Defects not apparent within one minute shall be ignored.

1.4.5.5 Defect Terminology

Table 3 gives the descriptive terms used in classifying defects.

Dark / Spots / Lines	Spots or lines that appear dark in the display patterns and are usually the result of contamination. Defects do not vary in size or intensity (contrast) when contrast voltage is varied. Contrast variation can be achieved through the use of varying gray shade patterns.
Bright Spots / Lines	Spots or lines that appear light in the display patterns. Defects do not vary in size or intensity (contrast) when contrast voltage is varied. Contrast variation can be achieved through the use of varying gray shade patterns.
Polarizer Scratch	When the unit lights, lines appear light (white) with display patterns dark and do not vary in size. Physical damage to the polarizer that does not damage the glass
Polarizer Dent	When the unit lights, spots appear light (white) with display patterns dark and do not vary in size. Physical damage to the polarizer that does not damage the glass.
Rubbing Line	Horizontal or diagonal lines that appear gray with the display patterns dark and may have resulted from an "out of control" rubbing process on the polyimide or "waves" on the BEFs or prism sheets.
Newton Ring	The "rainbow" effect caused by non-uniform cell thickness.
Mottling	When the unit lights, variation / non – uniformity (splotchiness) appears light (white) with the display and might vary in size.
Dim Line	When the unit lights, line(s) in the monitor (vertical) or major (horizontal) axis appear dim, but not completely on or off.
Cross Lines Off	When the unit lights, lines in both the minor and major axis do not appear.
Bright / Dark Dot	A sub – pixel (R,G,B dot) stuck off / on (electrical).

1.4.5.6 Smudges, Streaks and Smears

When viewing the panel oriented so as to maximize reflected light , there shall be no visible smudging , streaking, smearing or other non-uniformity from contaminants ,fingerprints, or defects in any of the visible surfaces. This is independent of whether the unit is operating or off .

1.4.5.7 Other Defects

Undefined defects that are considered to be rejectable will be reviewed as they become apparent. These panels will be referred to the Corporate / Manufacturer Purchasing Agreement for disposition.

1.4.5.8 LCD Inspection

Put LCD panel on inspection table and illuminate the panel with a daylight fluorescent lamp located above the panel surface such that the luminance at the LCD panel is between 1000 lux and 1500 lux .Defect limits are given in Table 4 .

Table 4

Average Diameter smaller of (L+W)/2 or L/20+2W	Acceptable Number	Minimum Separation
< 0.1mm	Non countable	N / A
0.1 mm ~ 0.3 mm	10	15 mm
0.31 mm ~ 0.5 mm	10	15 mm
0.51 mm ~ 1.25 mm	5	15 mm
1.26 mm ~ 2.5 mm	3	25.4 mm
2.51 mm ~ 3.75 mm	3	25.4 mm
Greater than 3.75 mm	NONE	Not applicable

Note : Allowable distance between spots of two sizes is the minimum separation number for the smaller spot. Therefore, if there are two spots, 1.30mm and 0.4mm in diameter, they must be at least 15mm apart.

1.5 Optical Characteristics

Depends on the LCD supplier's spec. Details refer to QA Inspection Spec.

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2.1 MAIN OSD MENU

a. Display OSD menu when user press “MENU” button on front bezel

b. Layout as following figure 1-1

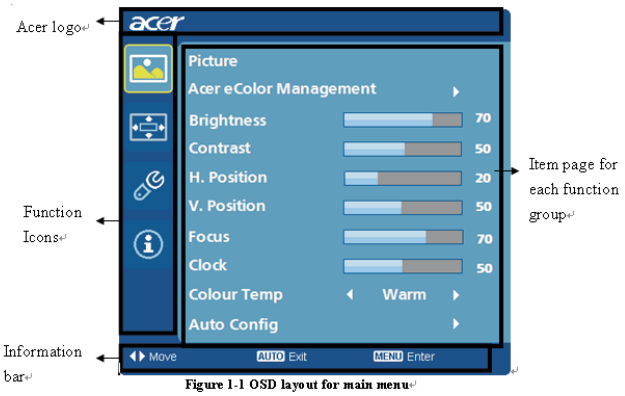

Figure 1-1 OSD layout for main menu

c. OSD layout for each function page

Picture

OSD

Settings

Information

d. The definition of size and color for main menu

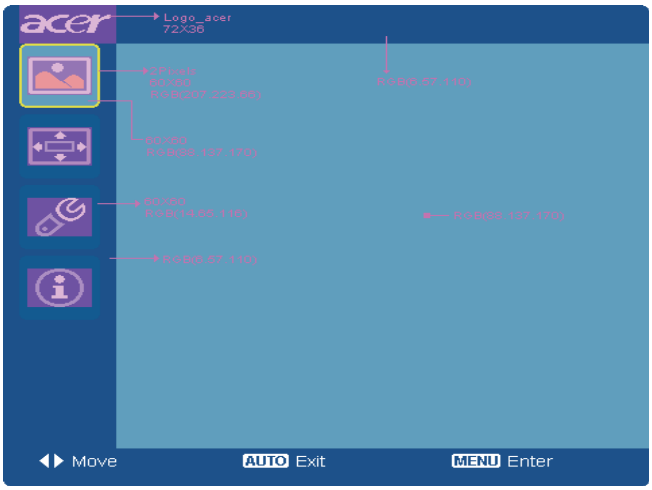

Figure 1-2 color & size definition for function Icons

The description for control function

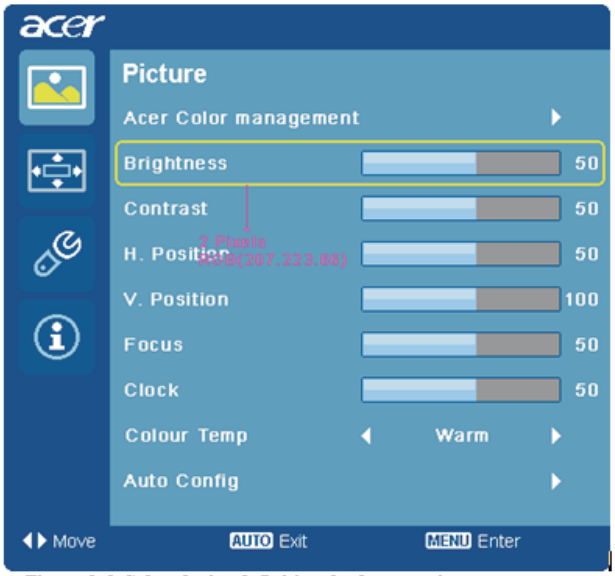

Figure 1-3 Color & size definition for hover at item page

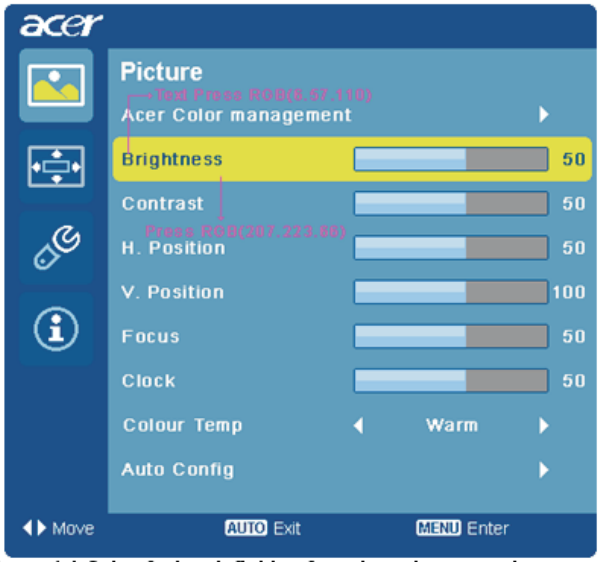

Figure 1-4 Color & size definition for selected status at item page

e Icons instruction

Function / Status	Picture	OSD	Setup	Information
Non-Focus				
Focus				
Focus on Item-page				

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f. Item page status

Status	Display type
Non-focus	Brightness 50
Item focused	Brightness 50
Item selected	Brightness 50

The description for control function

a. Key operation at function icon

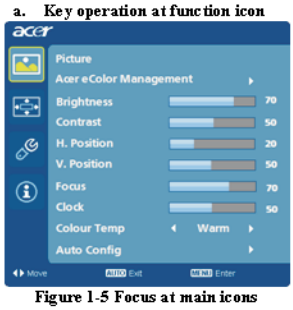

Figure 1-5 Focus at main icons

Key	Function description
Power	Power off the monitor
<	Moving the focus up
>	Moving the focus down
Menu	Enter to the item page 1. It has no function at the information page.
Auto	Exit the OSD menu
e	Trigger the acer eColor Management

b. Key operation at items page, No item selected

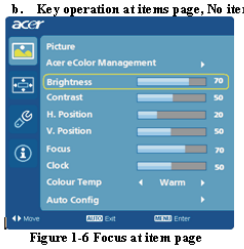

Figure 1-6 Focus at item page

Function description
Power off the monitor
Moving the focus up
Moving the focus down
Select function item for adjustment
Exit from the item page to icon place
Trigger the acer eColor Management

c. Key operation at items page, item selected

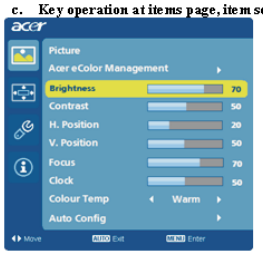

Figure 1-7 Item is selected

Key	Function description
Power	Power off the monitor
<	Decrease the setting value for target item
>	Increase the setting value for target item
Menu	No function
Auto	Exit from item selected status
e	Trigger the acer eColor Management

Acer eColor management

a. Display acer eColor Management OSD when user press "e" button on the front bezel or trigger this function in OSD menu/picture page.

b. Layout as following figure 1-8

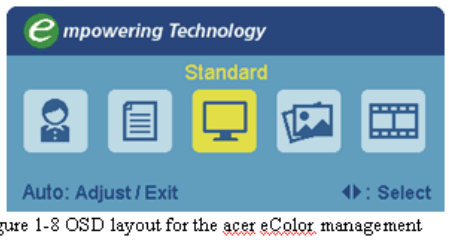

Figure 1-8 OSD layout for the acer eColor management

c. The definition of color & size for the acer eColor management OSD

Figure 1-9 OSD Color information for the acer eColor management

d. Icons introduction

Icons					
Name	User	Text	Standard	Graphics	Movie
Size	60x54Pixes				

Remark: Acer logo must be appeared while "power on" or "suspend"

Scenario mode:

Mode	Contrast (OSD)	Brightness (OSD)
User mode	(User defined)	(User defined)
Text mode	50 (slope 1.0)	44 (61%)
Standard mode	50 (slope 1.0)	77 (85%)
Graphics mode	60 (slope 1.04)	97 (98%)
Movie mode	56 (slope 1.025)	77 (85%)

Note: The contrast/brightness value of modes should be adjusted by requirement.

Operation method:

Step 1: Press "e" key to initial scenario mode.

Step 2: Press ">" or "<" key to select the mode you want (not cyclic).

Step 3: If user has NO action after Step 2, OSD will disappear after 10 sec and do "auto scan" (mode keep in original one, no change).

If user press "e" key after Step 2, it means user confirm the chosen mode and monitor will do "auto scan" as well.

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Volume management OSD

a. Display volume management OSD, when user press “<” or “>” button on front bezel.

b. Layout as following figure 1-10, key operation at items page (No item selected)

Figure 1-10 OSD layout for volume management

Key	Function description
Menu	Close volume OSD
Auto	
e	
input	
<	Volume down
>	Volume up

c. The definition of color & size for the volume management OSD and file

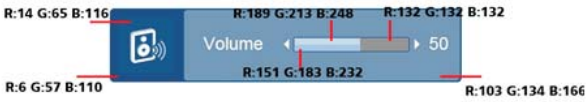


Figure 1-11 Color definition for volume management OSD and file

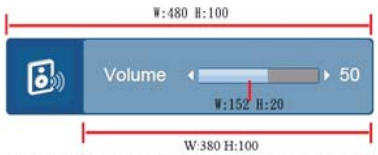
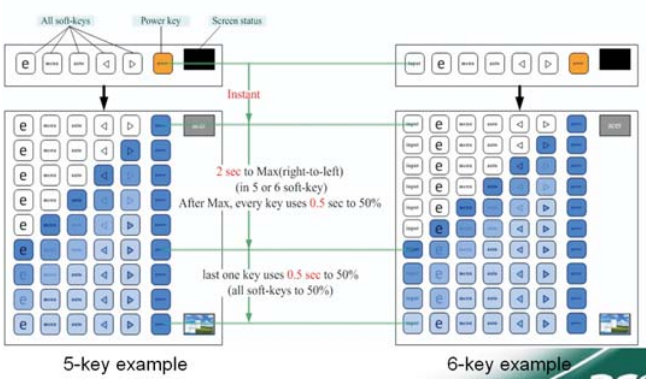


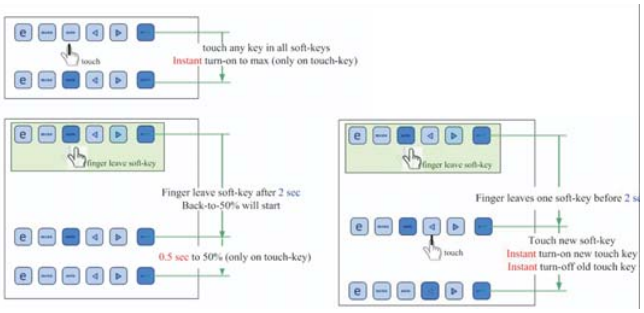
Figure 1-12 Size definition for volume management OSD

LED Light Effect in Soft-key

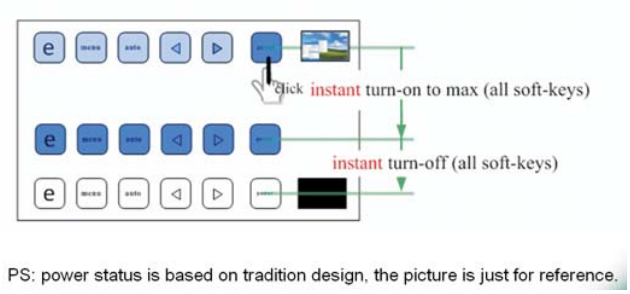
Power ON



Normal operation

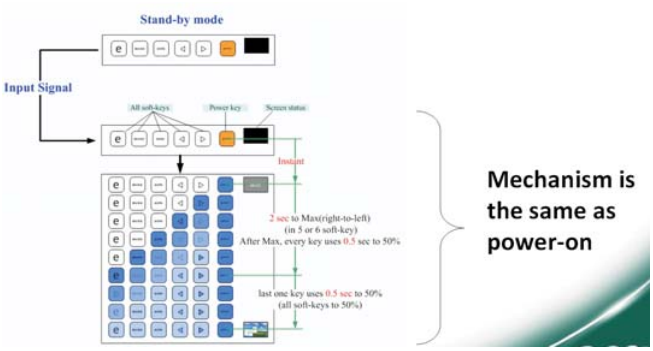

touch any key in all soft-keys
Instant turn-on to max (only on touch-key)
Finger leave soft-key after 2 sec
Back-to-50% will start
0.5 sec to 50% (only on touch-key)
Finger leaves one soft-key before 2 s
Touch new soft-key
Instant turn-on new touch key
Instant turn-off old touch key

Power turn-off

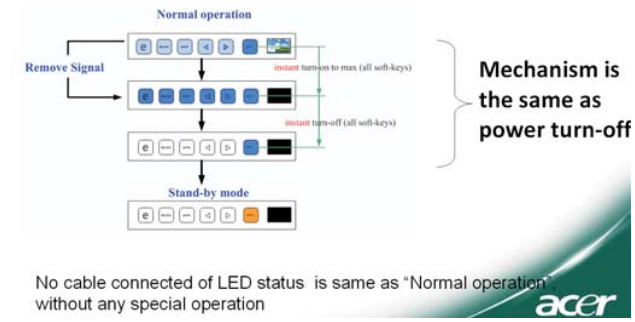


PS: power status is based on tradition design, the picture is just for reference.

Stand-by then Input Signal


Stand-by mode
Input Signal
Instant
2 sec to Max(right-to-left)
(in 5 or 6 soft-key)
After Max, every key uses 0.5 sec to 50%
last one key uses 0.5 sec to 50%
(all soft-keys to 50%)
Mechanism is the same as power-on

Normal Operation then remove Signal


Normal operation
Remove Signal
instant turn-on to max (all soft-keys)
instant turn-off (all soft-keys)
Stand-by mode
Mechanism is the same as power turn-off
No cable connected of LED status is same as “Normal operation”, without any special operation

Appendix

*Multiple language

Length Limit	1.English (英語)	2.Russian (俄語)	3.Deutsch (德語)	4.Français (法語)	5.Español (西班牙語)	6.Italiano (意大利語)	7.Dutch (荷蘭語)	8.Finnish (芬蘭語)
	Picture	Изображ.	Bild	Image	Imagen	Immagine	Beeld	Kuva
19	Brightness	Яркость	Helligkeit	Luminosité	Brillo	Luminosità	Helderheid	Kirkkaus
19	Contrast	Контрастность	Kontrast	Contraste	Contraste	Contrasto	Contrast	Kontrasti
19	H.Position	Полож. по гориз.	H.Position	H.Position	H.Posicion	O.Posizione	H. positie	Vaakasijainti
19	V.Position	Полож. по верт.	V.Position	V.Position	V.Posicion	V.Posizione	V. positie	Pystysijainti
19	Focus	Фокусировка	Fokus	Netteté	Nitidez	Nitidezza	Scherpstelling	Tarkennus
19	Clock	Частота	Takt	Fréquence	Reloj	Orologio	Klok	Taajuus
	Colour Temp	Цвет.темп.	Farbtemp.	Temp. Couleur	Temp. Color	Temp. Colore	Kleurtemp.	Värin lämpötsyys
19	Warm	Теплый	Warm	Chaud	Cálido	Caldo	Warm	Lämmin
19	Cool	Холодный	Kalt	Clair	Frio	Freddo	Koel	Viileä
19	User	Пользоват.	Anwender	Utilisateur	Usuario	Utente	Gebruiker	Käyttäjä
19	Red	Красный	Rot	Rouge	Rojo	Rossa	Rood	Punainen
19	Green	Зеленый	Grün	Vert	Verde	Verde	Groen	Vihreä
19	Blue	Синий	Blau	Bleu	Azul	Blu	Blauw	Sininen
19	Auto Config	Автонастройка	Autom. Abgl.	Autoréglage	Autoajuste	Autoregolazione	Autom.configuratie	Autom. asetukset

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19	OSD Timeout	Вр. отобр. Меню	OSD-Dauer	Délai de l'OSD	T. de espera OSD	Intervallo OSD	Time-out OSD	Aikakatkaisu
	Setting	Настр.	Einstellung	Réglages	Configuración	Impostazione	Instelling	Asetus
	Wide Mode	Широкоэк.реж.	Bildformate	Mode Large	Modo panorámico	Schermo intero	Breedbeeldmodus	Laajakuva
	Full	Полное	Vollbild	Plein écran	Completa	Pieno	Volledig	Täysikuva
	Aspect	Aspect						
19	Input	Вход	Eingang	Entrée	Entrada	Input	Ingang	Tulo
	Language	Язык	Sprache	Langue	Idioma	Lingua	Taal	Kieli
19	Reset	Сброс	Rücksetzen	Restaurer	Reiniciar	Resetare	Opn.instellen	Nollaus
19	Please Wait	Подождите	Bitte warten	Veuillez patienter	Espere, por favor	Attendere prego	Een ogenblik geduld	Odota
	Information	Информация	Info	Informations	Información	Informazioni	Informatie	Informaatio
19	Exit	Выход	Beenden	Quitter	Salida	Uscita	Afsluiten	Lopeta
19	Return	Возврат	Zurück	Retour	Volver	Ritorno	Terug	Palaa
19	Enter	Ввод	Eingabe	Entrez	Introducir	Invio	Enter	Syötä
	Move	Переме	Beweg.	Dépla.	Mover	Muovi	Verpl.	Liiku

19	Volume	Громкость	Lautstärke	Volume	Volumen	Volume	Volume	Äänenvoimakkuus
19	Analog	Аналоговый	Analog	Analogique	Analógico	Analogico	Analoog	Analoginen
19	Digital	Цифровой	Digital	Numérique	Digital	Digitale	Digitaal	Digitaalinen
19	Message Menu :							
no limit	Auto Config Please Wait	Автонастройка, подождите...	Autom. Abgl. Bitte warten	Autoréglage Veuillez patienter	Autoajuste Espere, por favor	Autoregolazione Attendere prego	Bezig met automatische configuratie, een ogenblik geduld	Autom. asetukset. Odota
no limit	Cable Not Connected	Кабель не подключен	Leitung nicht angeschlossen	Câble non connecté	Cable no conectado	Cavo non connesso	Kabel niet aangesloten	Kaapeli ei kiinni
no limit	Input Not Supported	Вход не поддерживается	Frequenzen nicht unterstützt	Fréquences non supportées	Frecuencias no soportadas	Frequenza non supportata	Ingang niet ondersteund	Tuloa ei tueta
no limit	No Signal	Нет сигнала	Kein signal	Pas de signal	Sin señal	Assenza segnale	Geen signaal	Ei signaalia
	ON	Вкл	EIN	Allumé	ACTIVADO	ATTIVA	AAN	PÄÄLLÄ <ON>
	OFF	Выкл	Aus	OffEteinte	Apagado	Spento	Uit	Pois päältä

Acer eColor Management OSD							
UK	Russian	Ger	Fra	Spa	Ita	Dutch	Finnish
Standard	Стандарт	Standard	Standard	Estándar	Standard	Standaard	Vakio
Text	Текст	Text	Texte	Texto	Testo	Tekst	Teksti
Graphics	Изображение	Grafiken	Images	Gráficos	Grafica	Grafische	Grafiikka
Movie	Кино	Spielfilm	Film	Película	Film	Film	Elokuva
User	Пользователь	Benutzer	Utilisateur	Usuario	Utente	Gebruiker	Käyttäjä
Adjust/Exit	Настроить/Выход	Abstimmen/Beenden	Ajuster/Quitter	Ajuste/salir	Regola/Esci	Aanpassen/verlaten	Säädä/Lopeta
Select	Выбор	Auswahl	Sélectionner	Seleccionar	Seleziona	Selecteren	Valitse

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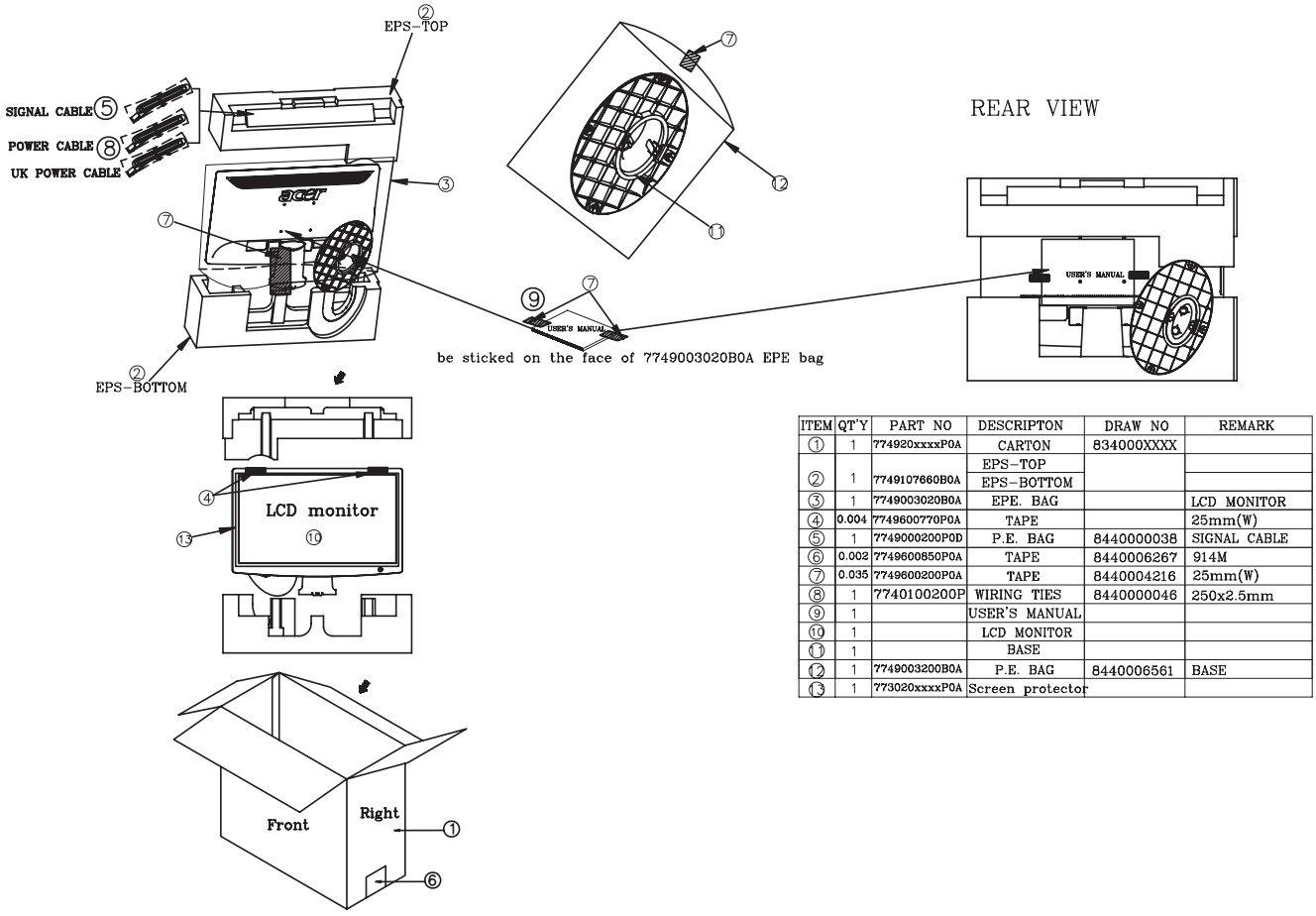
3.1 Packing Exploded Diagram



ITEM	QT'Y	PART NO	DESCRIPTON	DRAW NO	REMARK
①	1	774920xxxxP0A	CARTON	834000XXXX	
②	1	7749107660B0A	EPS-TOP		
			EPS-BOTTOM		
③	1	7749003020B0A	EPE. BAG		LCD MONITOR
④	0.004	7749600770P0A	TAPE		25mm(W)
⑤	1	7749000200P0D	P.E. BAG	8440000038	SIGNAL CABLE
⑥	0.002	7749600850P0A	TAPE	8440006267	914M
⑦	0.035	7749600200P0A	TAPE	8440004216	25mm(W)
⑧	1	7740100200P	WIRING TIES	8440000046	250x2.5mm
⑨	1		USER'S MANUAL		
⑩	1		LCD MONITOR		
⑪	1		BASE		
⑫	1	7749003200B0A	P.E. BAG	8440006561	BASE
⑬	1	773020xxxxP0A	Screen protector		

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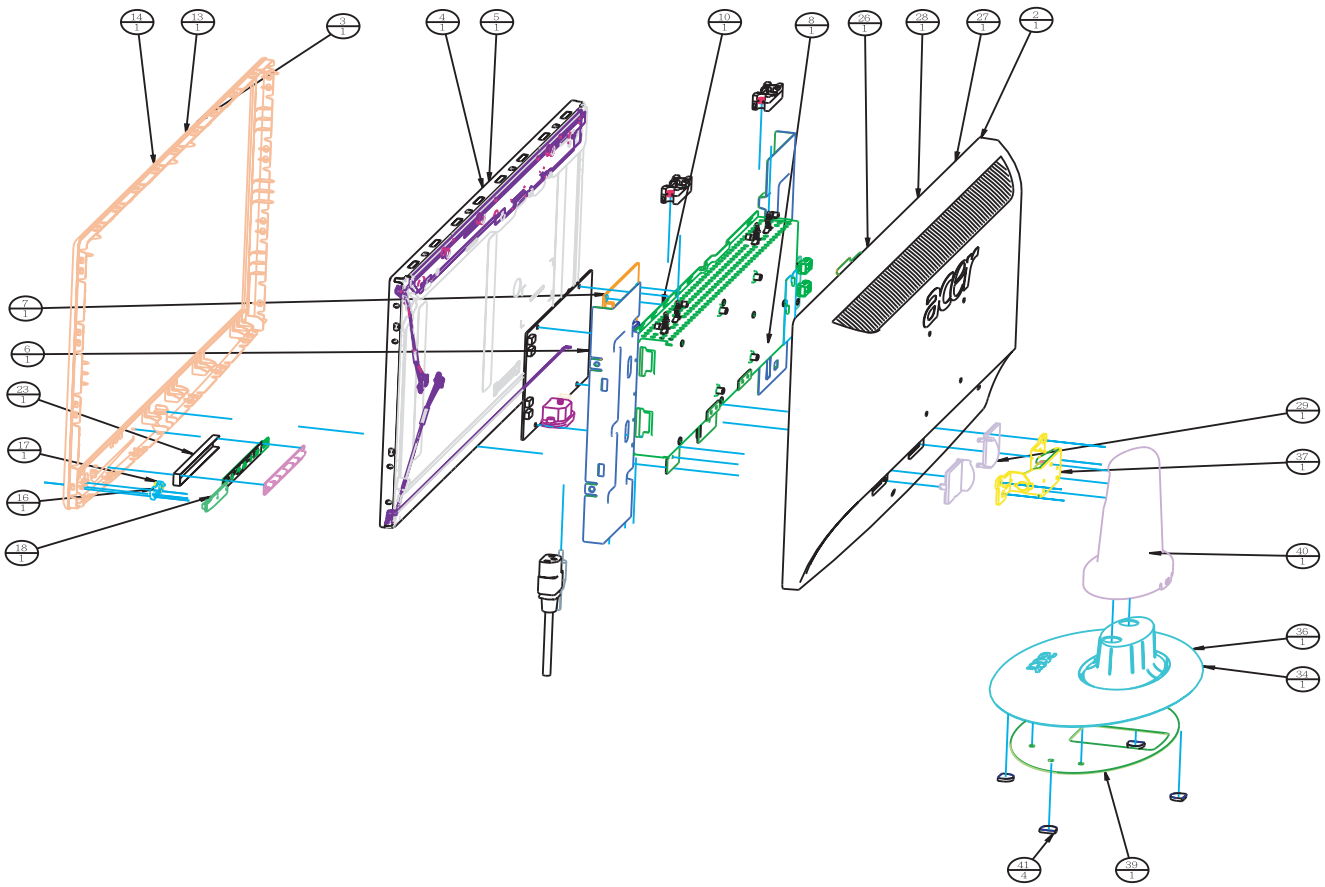
3.2 Product Exploded Diagram



Index	Componment Description	Qty	Part_number	Material
41	RUBBER_FOOT_PAD	4	7742005950P0A	
40	RUBBER_FOOT_PAD-2	1		
39	BASE_METAL	1	7748718420P0A	
38	BASE_METAL_TWO	1		
37	ACER_H233H_HINGE	1	7738002060P0A	
36	22120_BASE_ASSY	1		
35	22110_HINGE_ASSY	1		
34	22000_STAND_ASSY	1		
33	21370_BRACKET_FIX_BASE	1		
32	21360_LOGO	1		
31	21350_DECORATION_STRIP_RC_3	1		
30	21340_DECORATION_STRIP_RC_2	1		
29	21330_HINGE_COVER	1		
28	21311_REAR_COVER_USB	1		
27	21310_REA_COVER	1		
26	21300_BACK_COVER_ASSY	1		
25	FRONT_BEZEL_OLD	1		
24	FRONT_BEZEL	1		
23	24W	1		
22	21290_DECORATION_STRIP_FC_2	1		
21	21280_DECORATION_STRIP_FC_1	1		
20	21270_MYLAR	1		
19	21260_LOGO	1		
18	21250_KEY_BD	1		
17	21240_LENS	1		
16	21230_POWER_KEY	1		
15	21220_FUNCTION_KEY	1		
14	21210_FRONT_COVER	1		
13	21200_FRONT_BEZEL_ASSY	1		
12	21180_OTHER_ASSY_A	1		
11	21170_SHIELD_USB	1		
10	21160_BRACKET_COVER_ASSY	1		
9	21150_INVERTER_BD_ASSY	1		
8	21140_USB_ASSY	1		
7	21130_INTERFACE_BD_ASSY	1		
6	21120_POWER_BD_ASSY	1		
5	21110_PANEL_ASSY	1		
4	21100_CHASSIS_ASSY	1		
3	21000_MONITOR_HEAD_ASSY	1		
2	20000_MECH_DESIGN	1		
1	10000_ID_ASSY	1		

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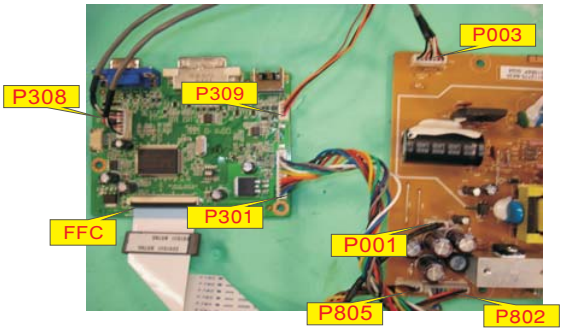
Go to cover page

4.1 Assembly procedures:

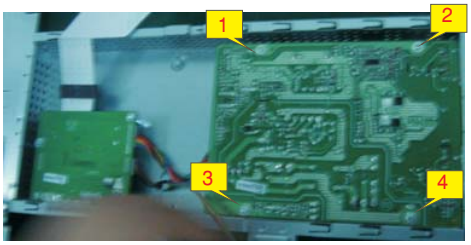
S1

Connect the cable between power board(P802) and interface board (P301)
Connect the cable between power board(P003) and interface board(P308)
Connect the USB board cable(P301) into interface board(P805)
Connect speak cable into interface board(P001)
Connect the FFC cable into interface board
Connect the power key cable(P601)into interface board(P309)



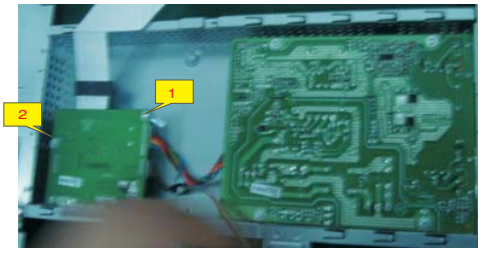
S2

Use a Phillips-head screwdriver screwed the No.1~4 screws till that power board and bracket chassis base firmly attached.(No1~3 screw size=M3x6; No4 screw size=M4x8; Torque=9~10KGFxCM).



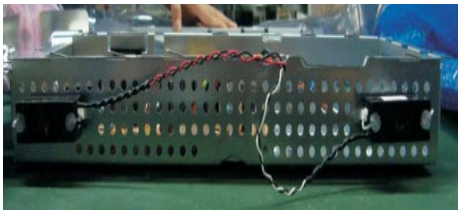
S3

Use a Phillips-head screwdriver screwed the No.1~2 screws till that interface board and bracket chassis base firmly attached.
(No1~2 screw size=M3x6; Torque=9~10KGFxCM).



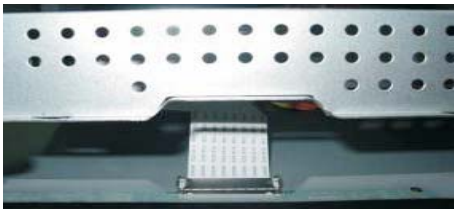
S4

Fix the speaker and speaker cable, The white line in the left ,the red line in the right.

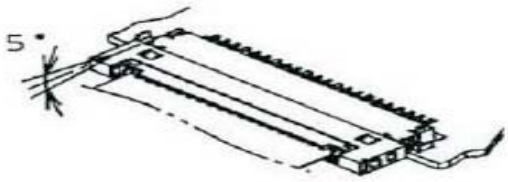


S5

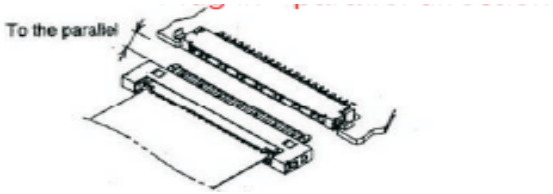
Turn the monitor faced down and put it on the bracket chassis module till both parts firmly Connect FFC cable to LCD panel. There are two locks over here when plugging in should be noticed.



Plug in parallel direction

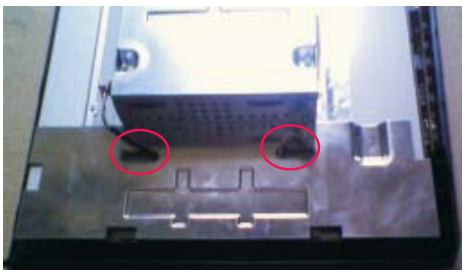


Angel < 5 degrees



S6

Take lamp cables out from the holes shown as the photo.



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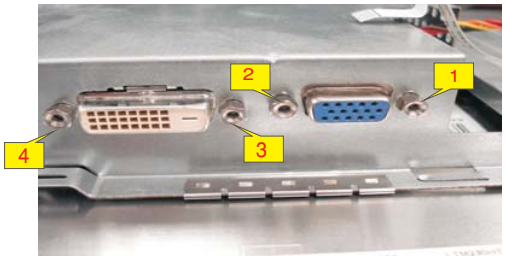
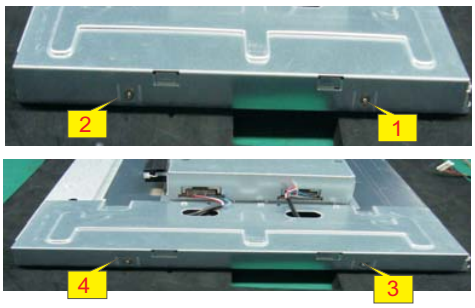
S7 Plug 2 lamp cables to the connectors of inverter board.

S8 Use a Hex-head screwdriver screwed the DVI and D-SUB connectors (No.1~4 Hex Nut screws Size=M3x8;Torque=4~6KGFxCM).

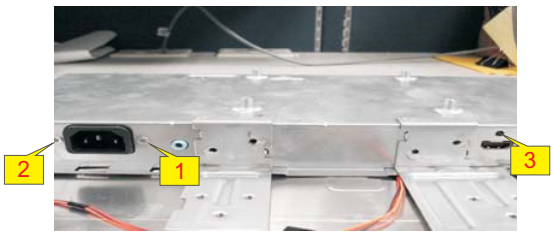


S9 Take out the USB cable to through out the hole.

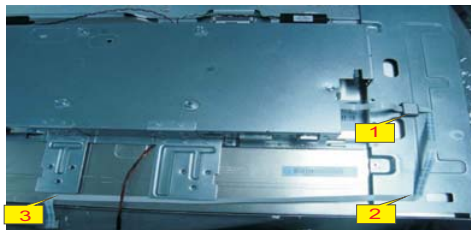
S10 Use a Phillips-head screwdriver screw 4 screws (No1~4 Screw Size=M3x6; Torque=2.5~3KGFxCM).



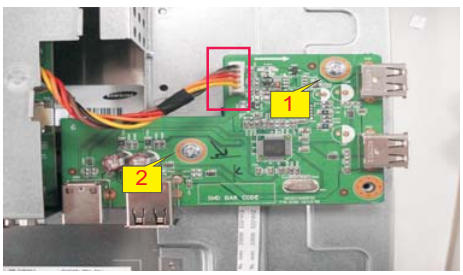
S11 Use a Phillips-head screwdriver screw 3 screws (No1~2 Screw Size=M3x10;No3 screw size=M3*6 Torque=4~6KGFxCM).



S12 Stick the safety tape
Connect OSD key cable into interface board(P306)



S13 Use a Phillips-head screwdriver screwed the No.1~2(No1~2 screw size=M3x6; Torque=9~10 KGFxCM).
Connect the USB cable.



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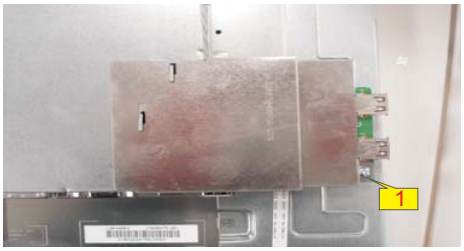
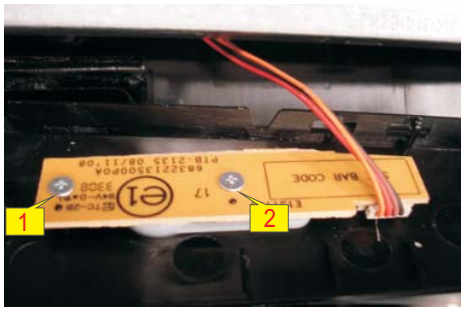
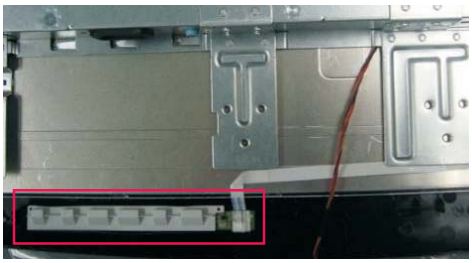
S14 Use a Phillips-head screwdriver screwed the No.1(No1screw size=M3x4; Torque=5+/-1 KGFxCM).



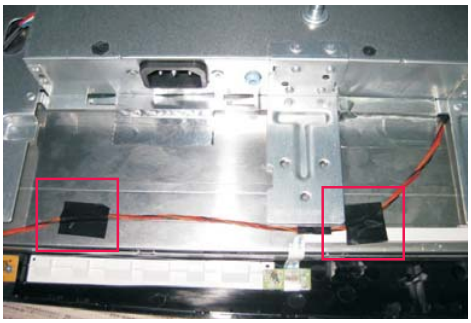
S15 Connect the power key cable.
Connect the power key board from front bezel, Use a Phillips-head screwdriver screwed the No.1~2 screws(No1~2 screw size=M2x3.3; Torque=1~1.5 KGFxCM).



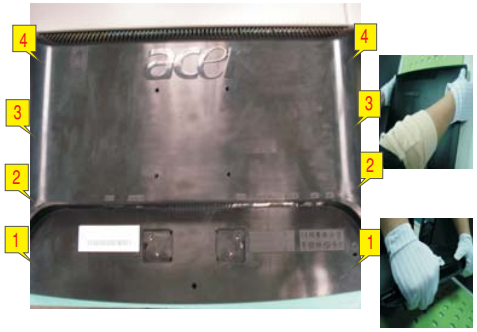
S16 Fix with the OSD key board on the front bezel



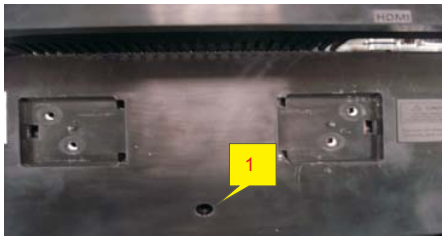
S17 Stick the power key cable with tape.



S18 Put a rear cover on the assembled unit and press on force mechanisms locked and firmly attached.



S19 Use a Phillips-head screwdriver screw 1 screw (No1 Screw Size=M3x10; Torque=7.5~9.5KGFxCM).



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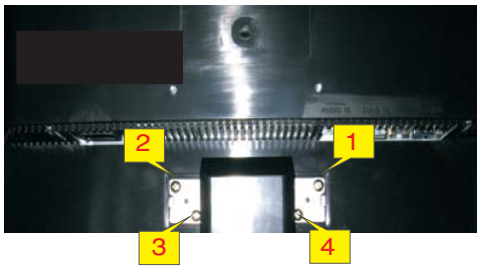
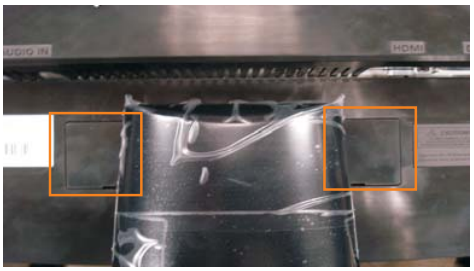
S20 Assemble the stand upper side to the rear cover through the way of screwing 4 screws till both units firmly attached.
(No1~4 Screw Size=M4x10; Torque=12+/-KGFxCM).

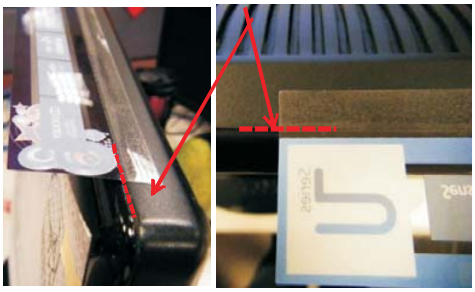


S21 Assemble the hinge cover into both two sides.

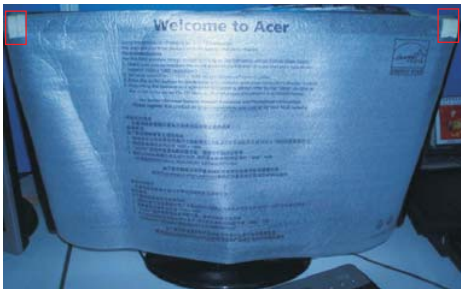


S22 Stick a screen card on the front bezel with two tapes.

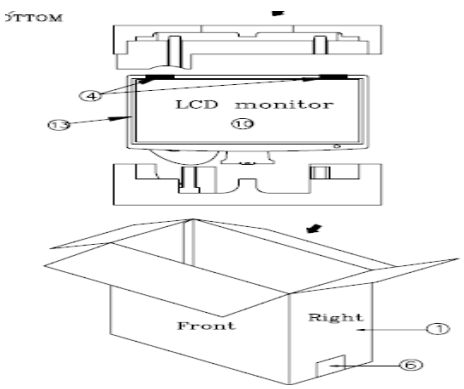
S23 Stick POP label on the correct position the same as below photo



S24 Take a LDPE+EPE bag to cover the LCD monitor.



S25 Take two cushion foams; one is held the top side of LCD monitor, and another is held the bottom side.



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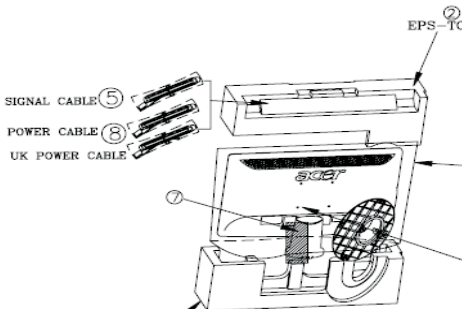
S26

Put accessories of stand, DVI cable, and user's manual ,power cable on specific positions as photo below.



S27

Move previous assembled parts into the carton then stick Vista and feature label on the carton then packing the carton

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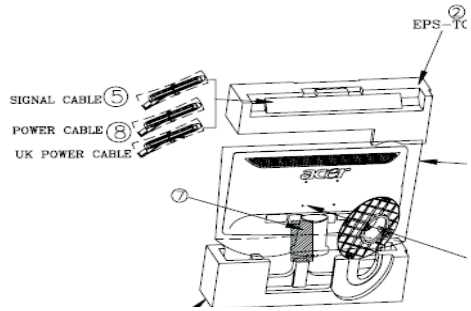
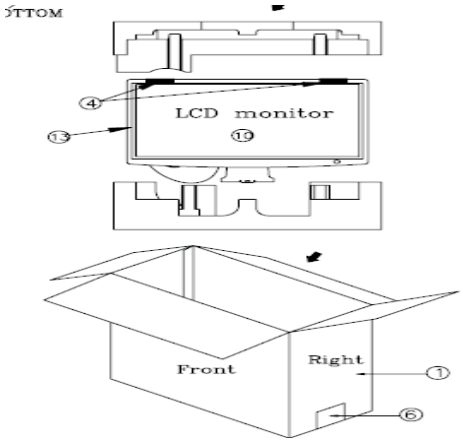
4.2 Disassembly procedures

S1 Open the carton with a proper tool.

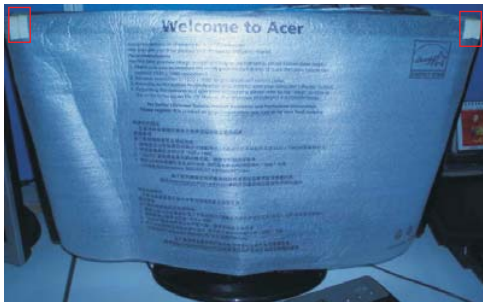
S2 Take out all accessories including D-SUB cable power cable, DVI cables, user's manual, and packing material from the carton. (Note: It depends on whether users returning the accessories.)



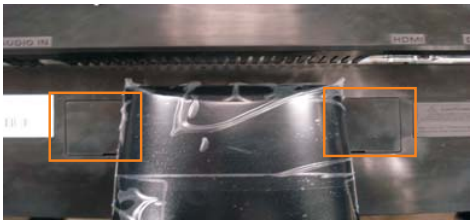
S3 Take off two cushion foams



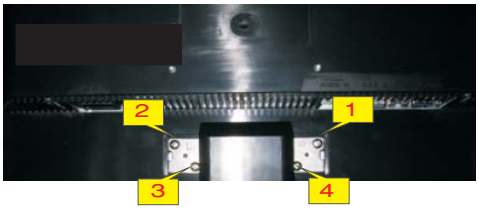
S4 Put returned unit on a protective cushion,then remove LDPE+EPE bag.
Tear off tapes to remove the screen protector card then turn over the LCD monitor (screen faced down),



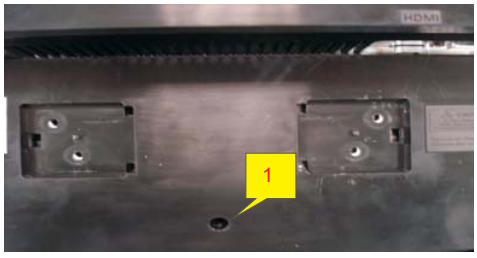
S5 Disassemble the stand cover.



S6 Use a Phillips-head screwdriver unscrew 4 screws to release the stand base.
(No1~4 Screw Size=M4x10;
Torque=12±1KGFxCM).



S7 Use a Phillips-head screwdriver unscrew 1 screw (No1 Screw Size=M3x10; Torque=7.5~9.5KGFxCM).



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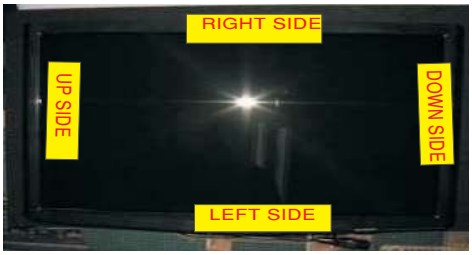
S8 Put the dissembled monitor closed to by myself



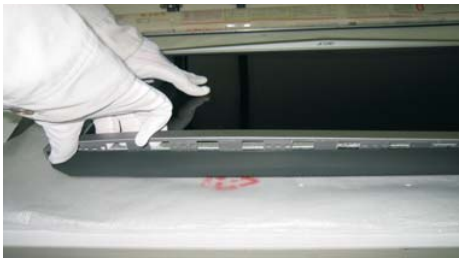
S9 Turn over the LCD monitor (screen faced up).

S10 Wedge your finger between the front bezel and the panel, then pry up on the front bezel to disengage the locking mechanism.
Note: The dissemble method of front bezel is as the below photos description, although the photos from S9 to S13 are not suitable for this model.

S11 Insert steel rule between panel and front bezel .Using properly force to let the locking mechanism of front bezel and rear cover separated

S12 Separating all of the locking mechanism of the front bezel in turn.

S13 Hold the one upside corner of the front bezel after separating the upside of the front bezel
Using properly force to pull up front bezel that will let the locking mechanism of left side, right side and down side separated.



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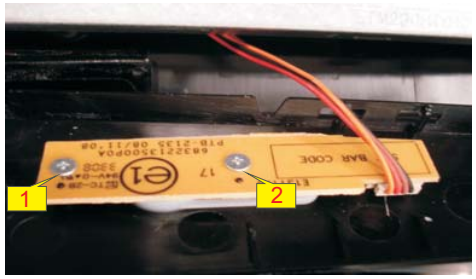
S14

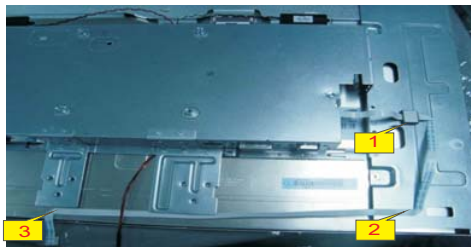
Hold one side of down side that had been separated from front bezel
Use properly force to pull up front bezel

S15

Use a Phillips-head screwdriver unscrewed the No.1~2 screws(No1~2 screw size=M2x3.3; Torque=1~1.5 KGFxCM).
Unhook the power key board from front bezel, disconnect the power key cable.



Tear off shield safety tape
Disconnect the OSD key cable

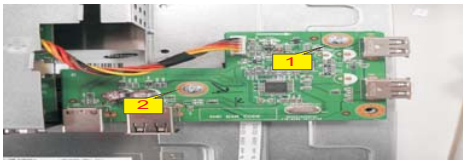


S17

Use a Phillips-head screwdriver unscrewed the No.1(No1screw size=M3x4; Torque=5+/-1 KGFxCM).

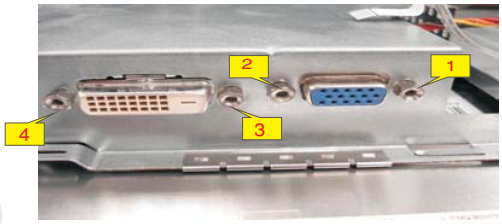
S18

Use a Phillips-head screwdriver unscrewed the No.1~2(No1~2screw size=M3x6; Torque=9~10 KGFxCM).
Unplug the USB cable and OSD key cable.



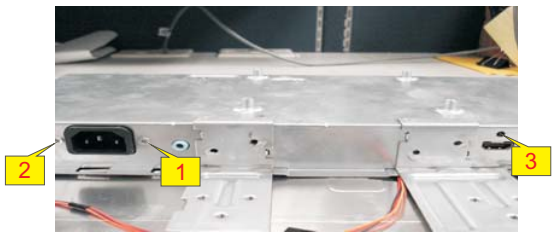
S19

Use a Hex-head screwdriver unscrewed 4 screws to release the DVI and D-SUB connectors
(No1~4Hex Nut screws
Size=M3x8;Torque=4~6KGFxCM).



S20

Use a Phillips-head screwdriver unscrewed the No.1~3 screws to release the power connector and HDMI connector.
(No1~2 screw size=M3x10; No 3 screw size=M3x6 Torque=4~6 KGFxCM).



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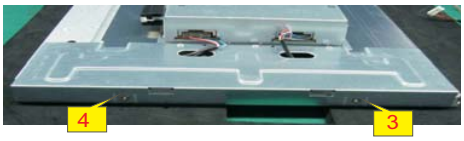
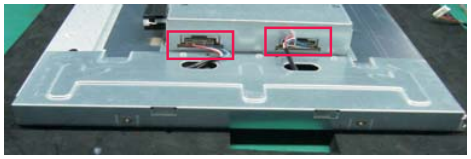
S21 Use a Phillips-head screwdriver unscrewed the No.1~4 screws
(No1~4 screw size=M3x5; Torque=2.5~3 KGFxCM).



S22 Disconnect the lamps cable
Take out lamp cables right through the No.1-2 square holes and separate the bracket chassis module and LCD panel apart.

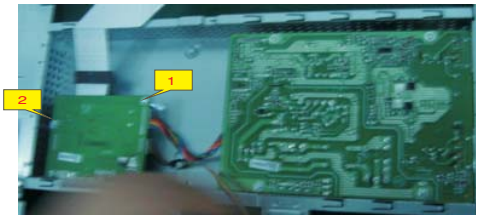


S23 Use long nose pliers to separate plastic hook

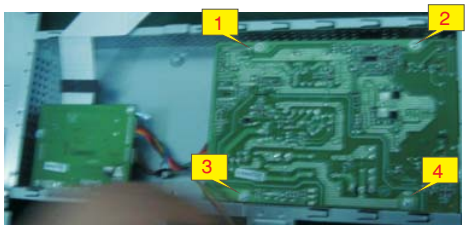
S24 Disconnect the FFC cable to the connector of panel.
Use finger to push the lock according to arrow direction then take out the FFC cable

S25 Examine the panel surface accoring to inspection criteria. Put it aside.

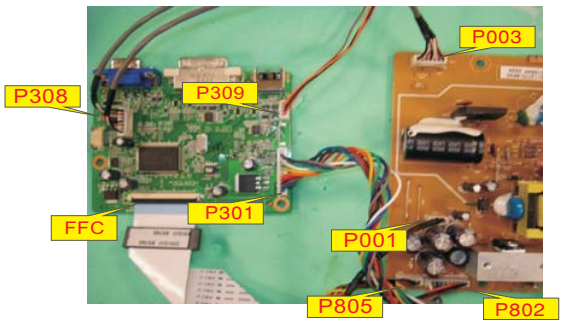
S26 Use a Phillips-head screwdriver unscrewed the No.1~2 screws to release the interface board.
(No1~2 screw size=M3x6; Torque=9~10KGFxCM).



S27 Use a Phillips-head screwdriver unscrewed the No.1~4 screws to disassemble the power board.
(No 1~3 screw size=M3x6; No 4 screw size=M4x8; Torque=9~10KGFxCM).



S28 Disconnect all of the cable



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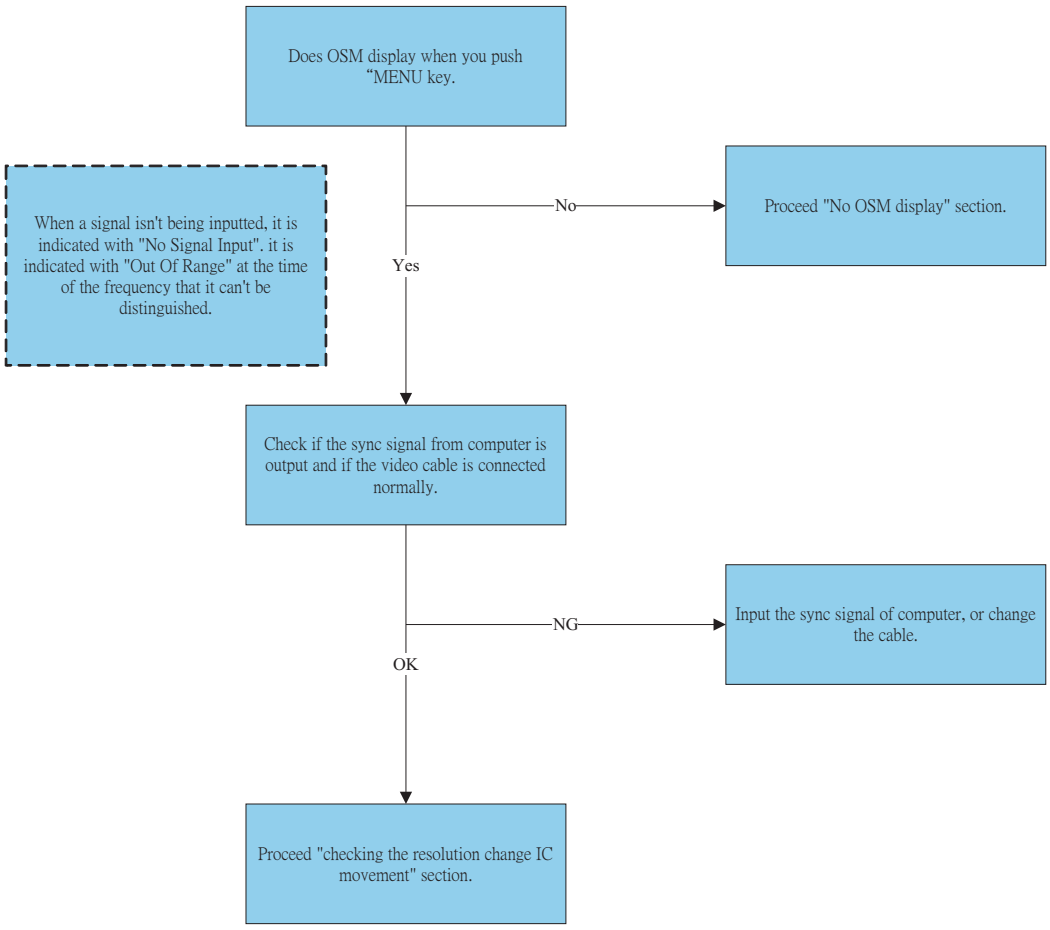
5.1.No.display of screen (Screen is black, color of LED is amber)


Does OSM display when you push "MENU key.
No
Proceed "No OSM display" section.
When a signal isn't being inputted, it is indicated with "No Signal Input". it is indicated with "Out Of Range" at the time of the frequency that it can't be distinguished.
Yes
Check if the sync signal from computer is output and if the video cable is connected normally.
NG
Input the sync signal of computer, or change the cable.
OK
Proceed "checking the resolution change IC movement" section.

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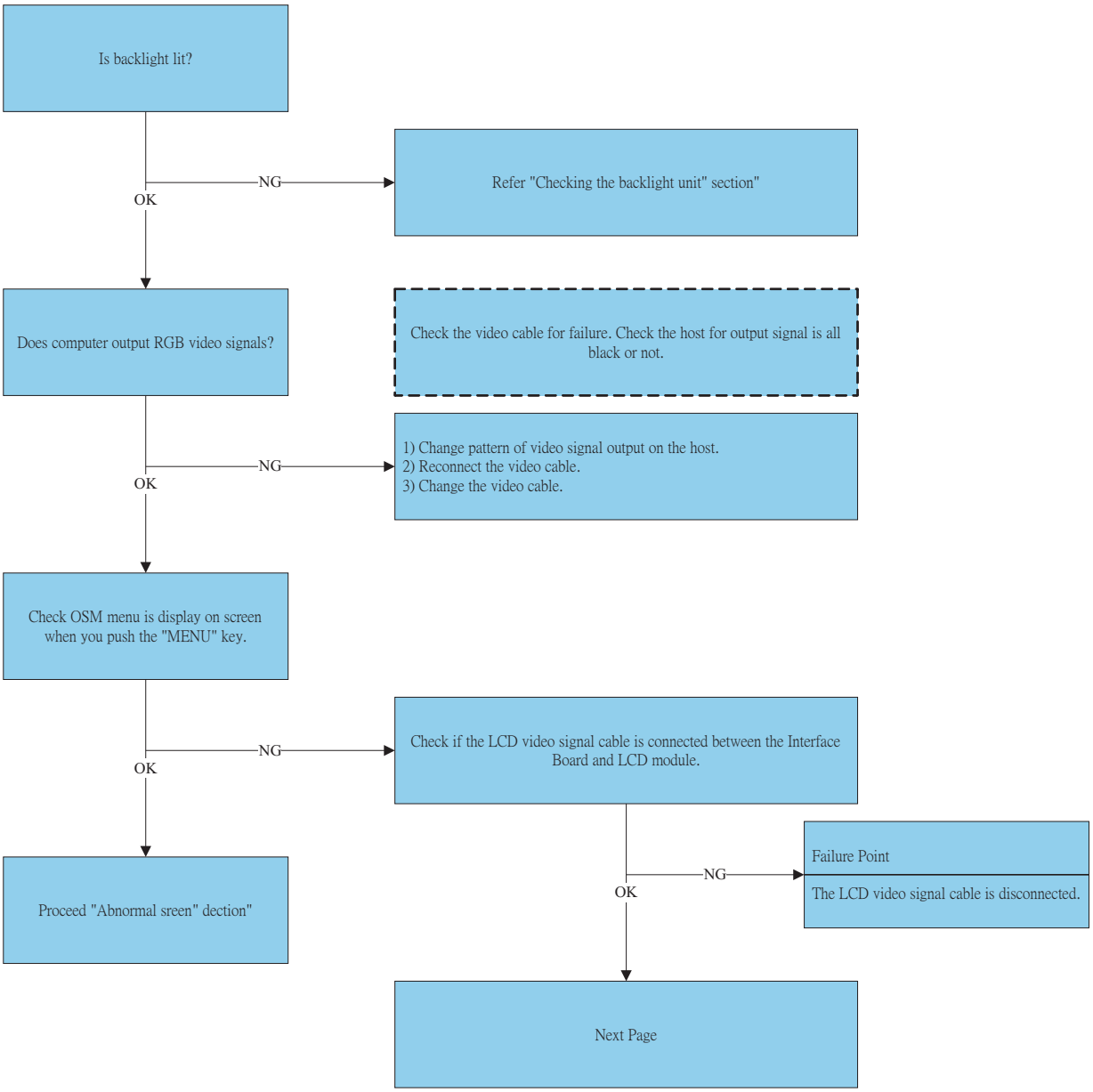
5.2 Nothing display on screen (screen is black, color of LED is blue)


Is backlight lit?
NG
Refer "Checking the backlight unit" section"
OK
Does computer output RGB video signals?
Check the video cable for failure. Check the host for output signal is all black or not.
NG
1) Change pattern of video signal output on the host.
2) Reconnect the video cable.
3) Change the video cable.
OK
Check OSM menu is display on screen when you push the "MENU" key.
NG
Check if the LCD video signal cable is connected between the Interface Board and LCD module.
OK
Proceed "Abnormal sreen" dection"
NG
Failure Point
The LCD video signal cable is disconnected.
OK
Next Page

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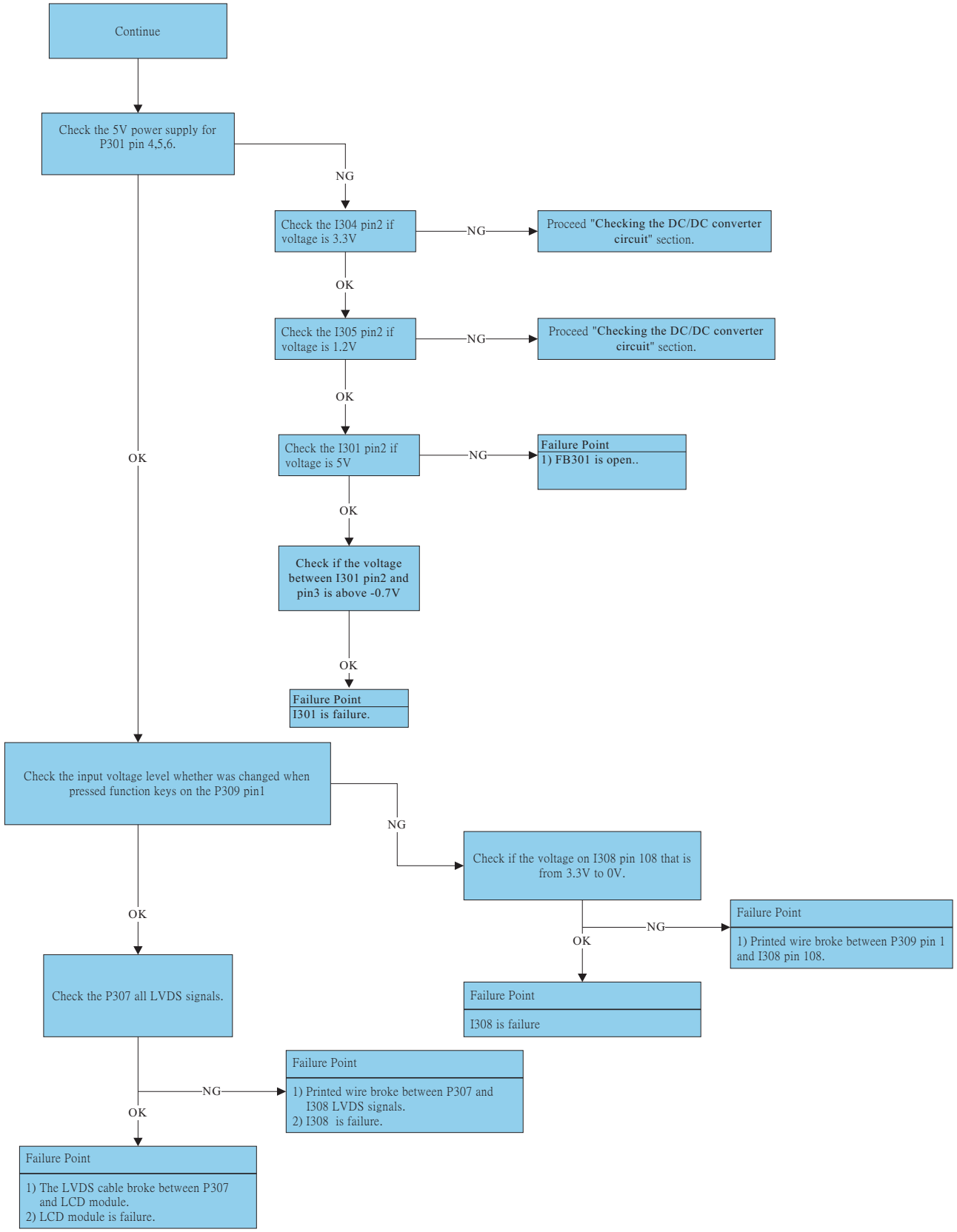
5.2 Nothing display on screen (screen is black, color of LED is blue)continued


Continue
Check the 5V power supply for P301 pin 4,5,6.
NG
Check the I304 pin2 if voltage is 3.3V
NG
Proceed "Checking the DC/DC converter circuit" section.
OK
Check the I305 pin2 if voltage is 1.2V
NG
Proceed "Checking the DC/DC converter circuit" section.
OK
Check the I301 pin2 if voltage is 5V
NG
Failure Point
1) FB301 is open..
OK
Check if the voltage between I301 pin2 and pin3 is above -0.7V
OK
Failure Point
I301 is failure.
OK
Check the input voltage level whether was changed when pressed function keys on the P309 pin1
NG
Check if the voltage on I308 pin 108 that is from 3.3V to 0V.
NG
Failure Point
1) Printed wire broke between P309 pin 1 and I308 pin 108.
OK
Failure Point
I308 is failure
OK
Check the P307 all LVDS signals.
NG
Failure Point
1) Printed wire broke between P307 and I308 LVDS signals.
2) I308 is failure.
OK
Failure Point
1) The LVDS cable broke between P307 and LCD module.
2) LCD module is failure.

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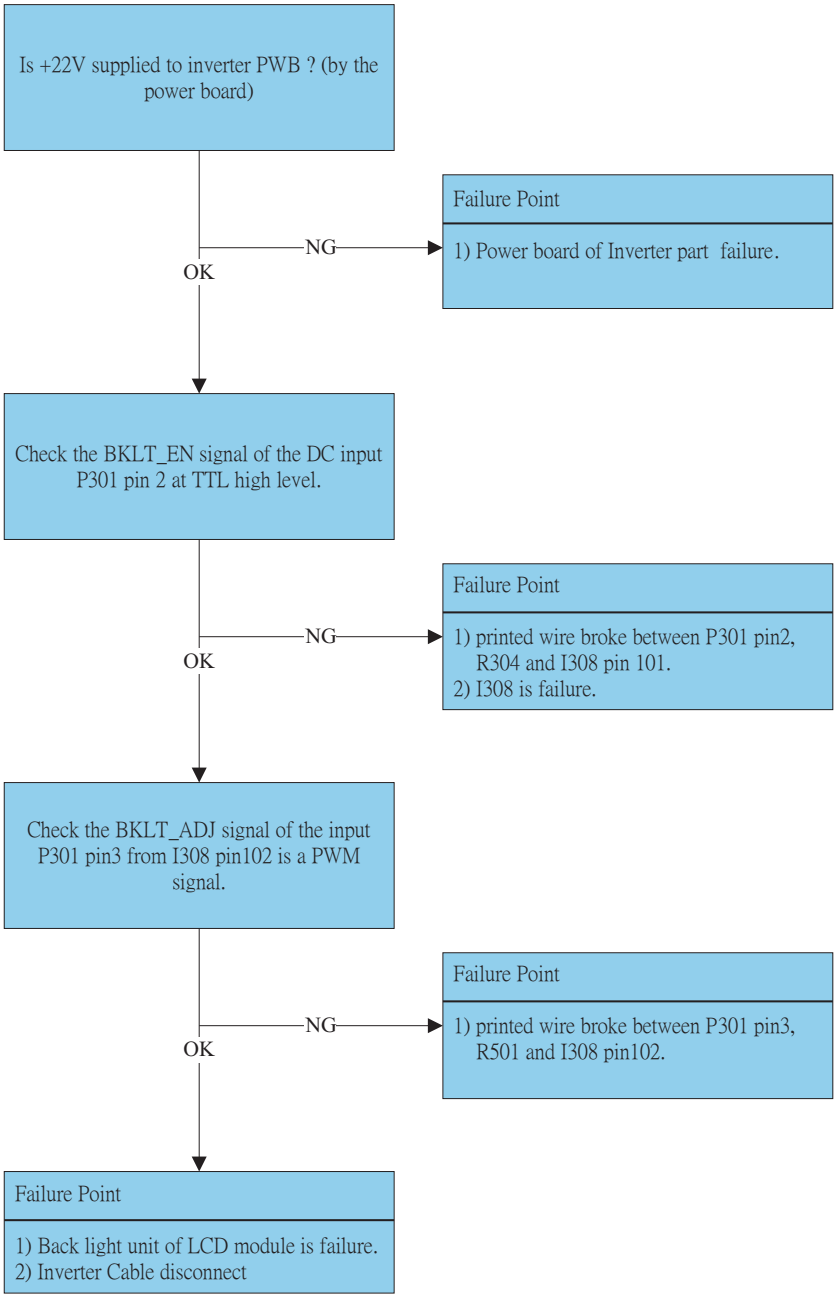
5.3 Checking the back light unit


Is +22V supplied to inverter PWB ? (by the power board)
NG
Failure Point
1) Power board of Inverter part failure.
OK
Check the BKLT_EN signal of the DC input P301 pin 2 at TTL high level.
NG
Failure Point
1) printed wire broke between P301 pin2, R304 and I308 pin 101.
2) I308 is failure.
OK
Check the BKLT_ADJ signal of the input P301 pin3 from I308 pin102 is a PWM signal.
NG
Failure Point
1) printed wire broke between P301 pin3, R501 and I308 pin102.
OK
Failure Point
1) Back light unit of LCD module is failure.
2) Inverter Cable disconnect

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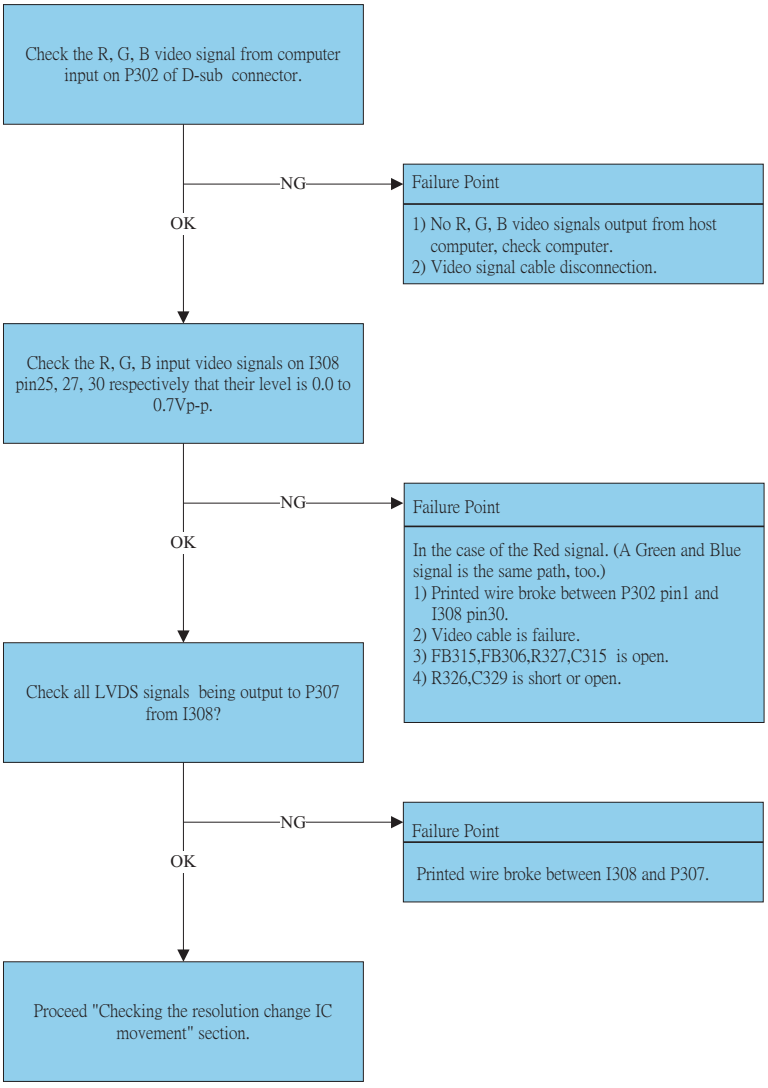
5.4 Abnormal screen for VGA


Check the R, G, B video signal from computer input on P302 of D-sub connector.
NG
Failure Point
1) No R, G, B video signals output from host computer, check computer.
2) Video signal cable disconnection.
OK
Check the R, G, B input video signals on I308 pin25, 27, 30 respectively that their level is 0.0 to 0.7Vp-p.
NG
Failure Point
In the case of the Red signal. (A Green and Blue signal is the same path, too.)
1) Printed wire broke between P302 pin1 and I308 pin30.
2) Video cable is failure.
3) FB315,FB306,R327,C315 is open.
4) R326,C329 is short or open.
OK
Check all LVDS signals being output to P307 from I308?
NG
Failure Point
Printed wire broke between I308 and P307.
OK
Proceed "Checking the resolution change IC movement" section.

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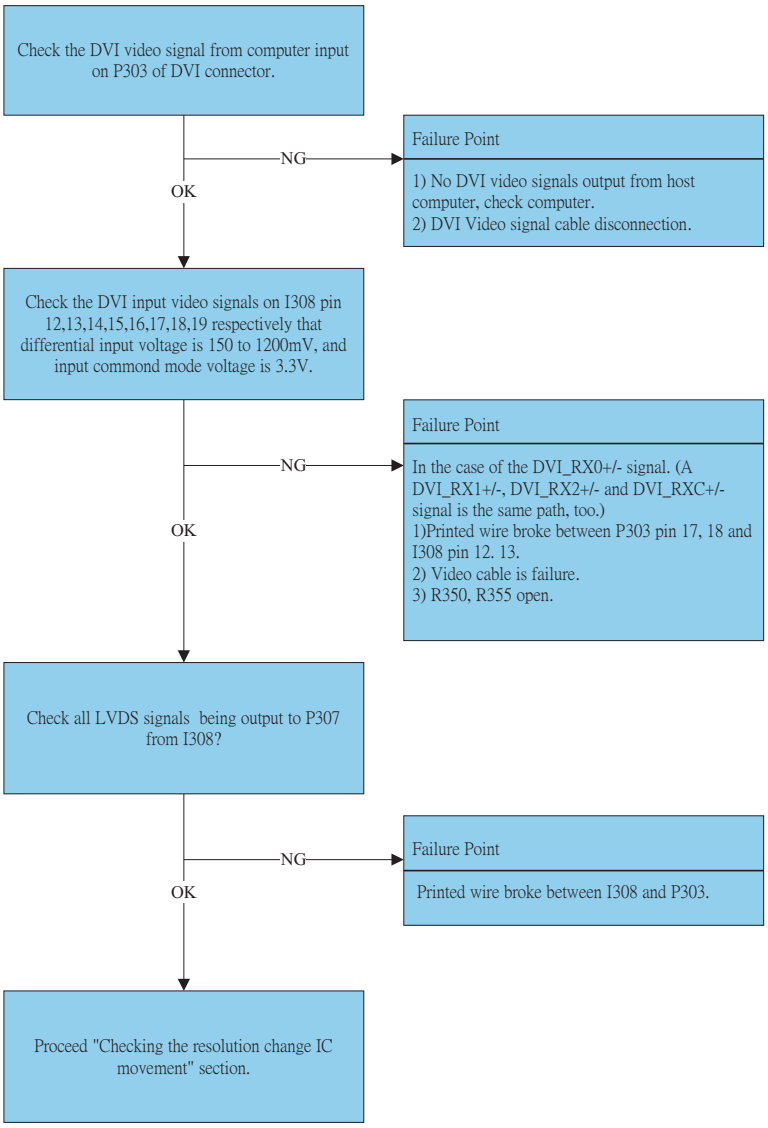
5.5 Abnormal screen (For DVI and the same for HDMI)


Check the DVI video signal from computer input on P303 of DVI connector.
NG
Failure Point
1) No DVI video signals output from host computer, check computer.
2) DVI Video signal cable disconnection.
OK
Check the DVI input video signals on I308 pin 12,13,14,15,16,17,18,19 respectively that differential input voltage is 150 to 1200mV, and input commond mode voltage is 3.3V.
NG
Failure Point
In the case of the DVI_RX0+/- signal. (A DVI_RX1+/-, DVI_RX2+/- and DVI_RXC+/- signal is the same path, too.)
1)Printed wire broke between P303 pin 17, 18 and I308 pin 12. 13.
2) Video cable is failure.
3) R350, R355 open.
OK
Check all LVDS signals being output to P307 from I308?
NG
Failure Point
Printed wire broke between I308 and P303.
OK
Proceed "Checking the resolution change IC movement" section.

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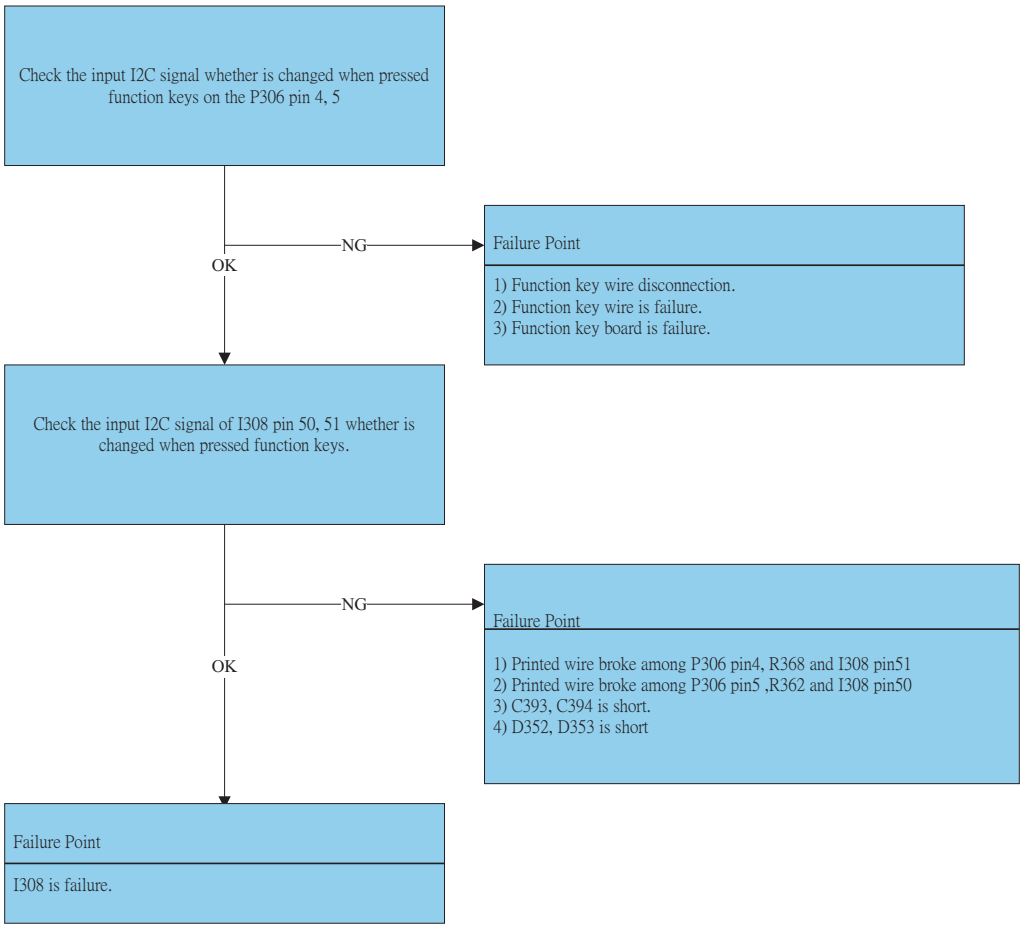
5.6 Abnormal OSM display adjust problem


Check the input I2C signal whether is changed when pressed function keys on the P306 pin 4, 5
NG
Failure Point
1) Function key wire disconnection.
2) Function key wire is failure.
3) Function key board is failure.
OK
Check the input I2C signal of I308 pin 50, 51 whether is changed when pressed function keys.
NG
Failure Point
1) Printed wire broke among P306 pin4, R368 and I308 pin51
2) Printed wire broke among P306 pin5 ,R362 and I308 pin50
3) C393, C394 is short.
4) D352, D353 is short
OK
Failure Point
I308 is failure.

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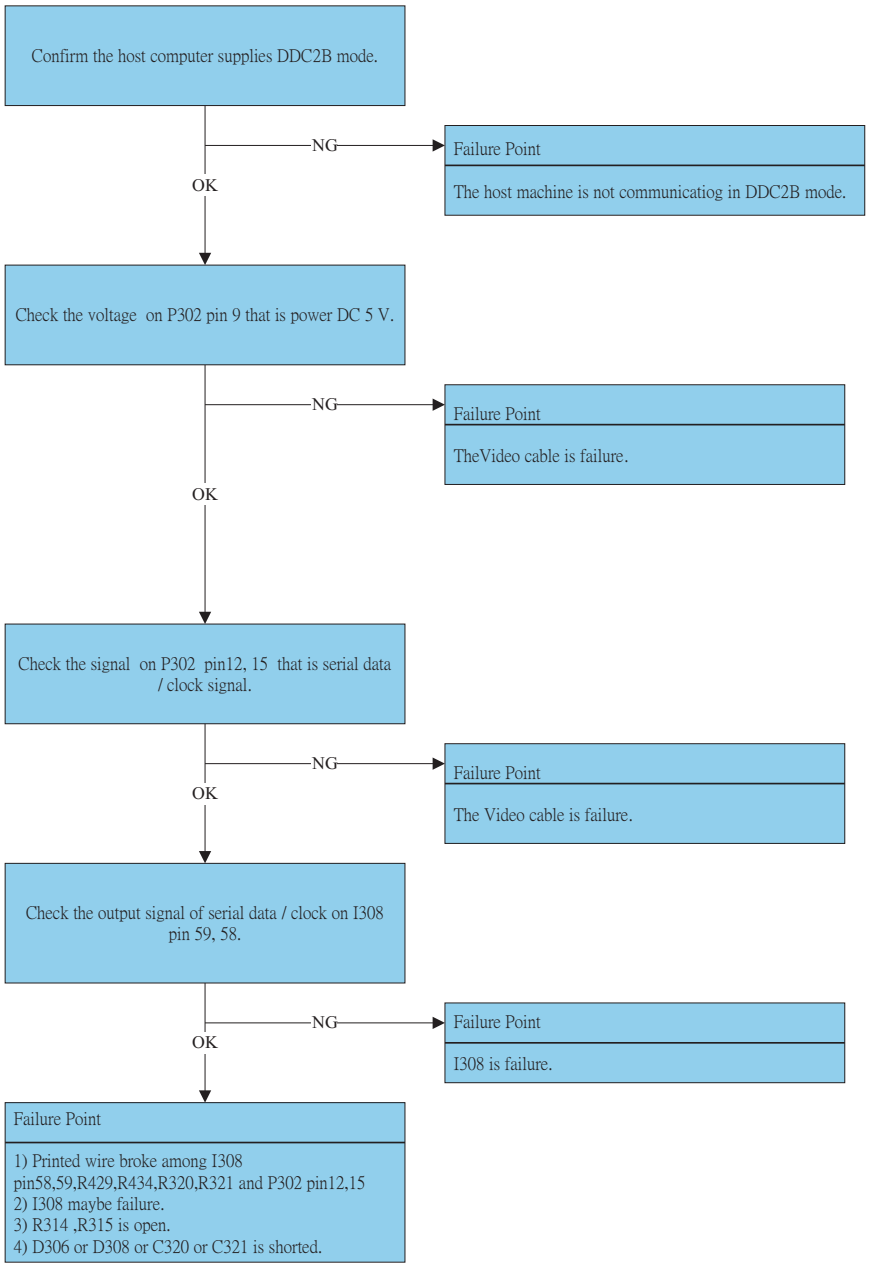
5.7 Abnormal plug and play operation for VGA


Confirm the host computer supplies DDC2B mode.
NG
Failure Point
The host machine is not communicatiog in DDC2B mode.
OK
Check the voltage on P302 pin 9 that is power DC 5 V.
NG
Failure Point
TheVideo cable is failure.
OK
Check the signal on P302 pin12, 15 that is serial data / clock signal.
NG
Failure Point
The Video cable is failure.
OK
Check the output signal of serial data / clock on I308 pin 59, 58.
NG
Failure Point
I308 is failure.
OK
Failure Point
1) Printed wire broke among I308 pin58,59,R429,R434,R320,R321 and P302 pin12,15
2) I308 maybe failure.
3) R314 ,R315 is open.
4) D306 or D308 or C320 or C321 is shorted.

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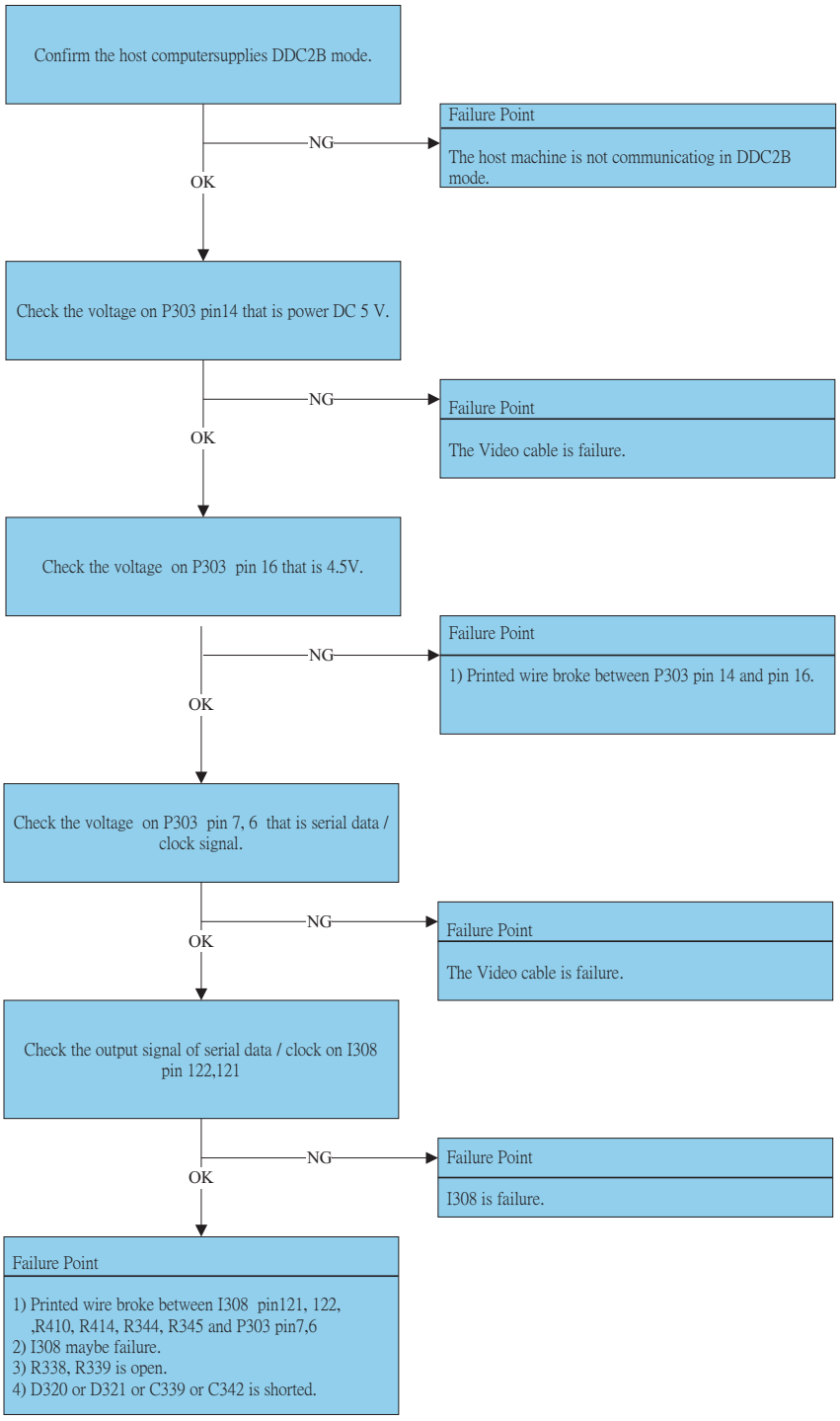
5.8 Abnormal plug and play operation (For DVI and the same for HDMI)


Confirm the host computersupplies DDC2B mode.
NG
Failure Point
The host machine is not communicatiog in DDC2B mode.
OK
Check the voltage on P303 pin14 that is power DC 5 V.
NG
Failure Point
The Video cable is failure.
OK
Check the voltage on P303 pin 16 that is 4.5V.
NG
Failure Point
1) Printed wire broke between P303 pin 14 and pin 16.
OK
Check the voltage on P303 pin 7, 6 that is serial data / clock signal.
NG
Failure Point
The Video cable is failure.
OK
Check the output signal of serial data / clock on I308 pin 122,121
NG
Failure Point
I308 is failure.
OK
Failure Point
1) Printed wire broke between I308 pin121, 122, ,R410, R414, R344, R345 and P303 pin7,6
2) I308 maybe failure.
3) R338, R339 is open.
4) D320 or D321 or C339 or C342 is shorted.

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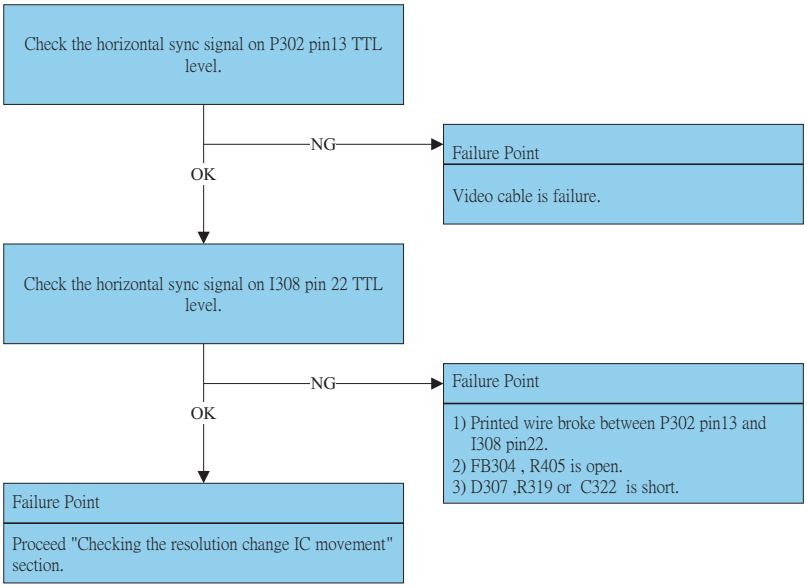
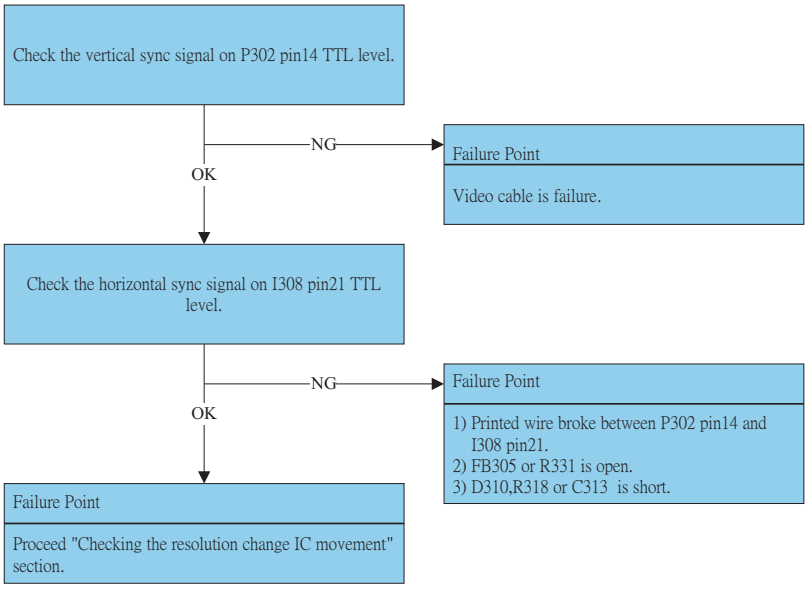
5.9 Checking the interface circuit of sync signal

5.9.1 Checking the control circuit of horizontal sync pulse


Check the horizontal sync signal on P302 pin13 TTL level.
NG
Failure Point
Video cable is failure.
OK
Check the horizontal sync signal on I308 pin 22 TTL level.
NG
Failure Point
1) Printed wire broke between P302 pin13 and I308 pin22.
2) FB304 , R405 is open.
3) D307 ,R319 or C322 is short.
OK
Failure Point
Proceed "Checking the resolution change IC movement" section.

5.9.2 Checking the control circuit of vertical sync pulse


Check the vertical sync signal on P302 pin14 TTL level.
NG
Failure Point
Video cable is failure.
OK
Check the horizontal sync signal on I308 pin21 TTL level.
NG
Failure Point
1) Printed wire broke between P302 pin14 and I308 pin21.
2) FB305 or R331 is open.
3) D310,R318 or C313 is short.
OK
Failure Point
Proceed "Checking the resolution change IC movement" section.

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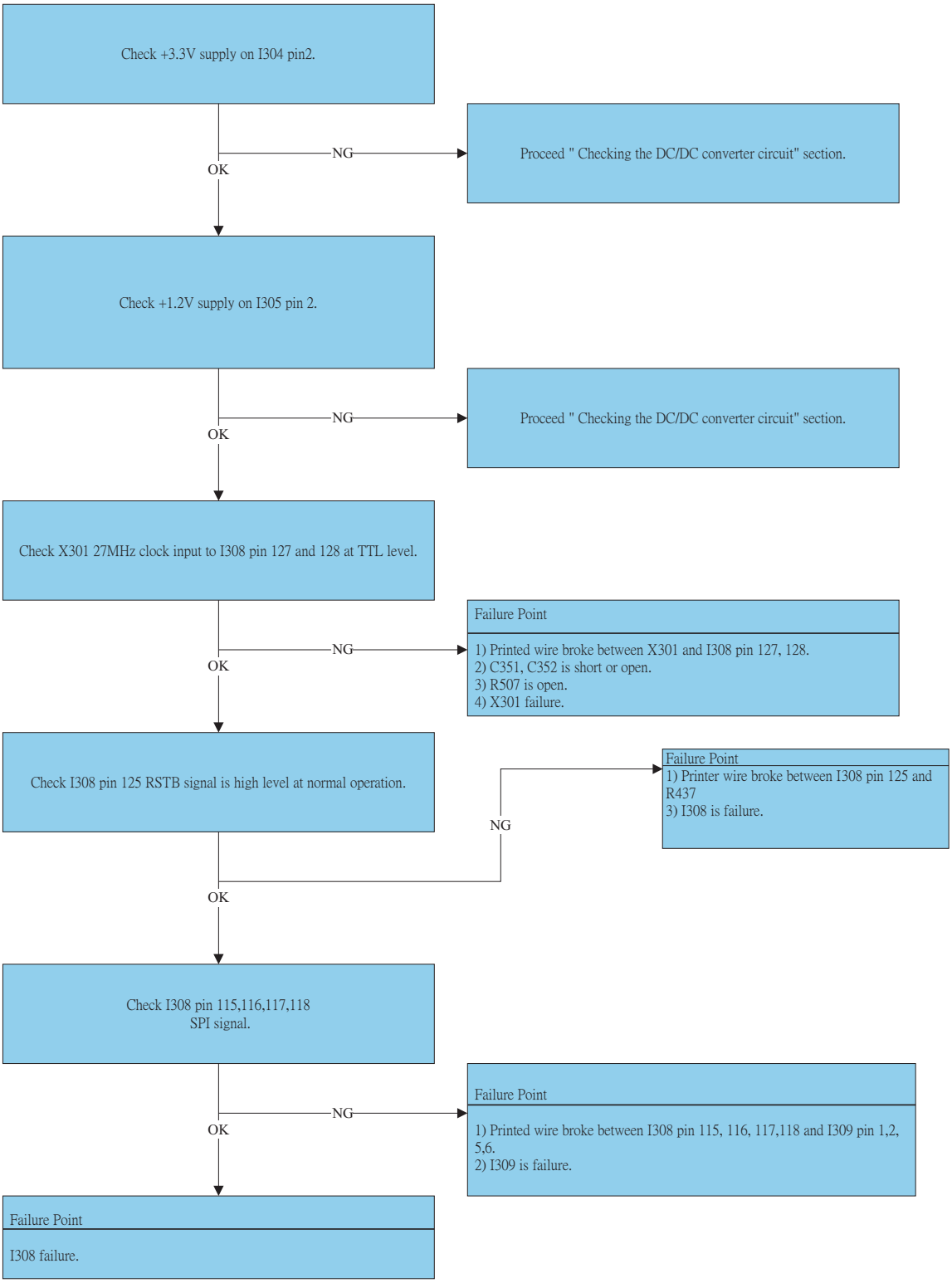
5.10 Checking the resolution change IC movement


Check +3.3V supply on I304 pin2.
NG
Proceed " Checking the DC/DC converter circuit" section.
OK
Check +1.2V supply on I305 pin 2.
NG
Proceed " Checking the DC/DC converter circuit" section.
OK
Check X301 27MHz clock input to I308 pin 127 and 128 at TTL level.
NG
Failure Point
1) Printed wire broke between X301 and I308 pin 127, 128.
2) C351, C352 is short or open.
3) R507 is open.
4) X301 failure.
OK
Check I308 pin 125 RSTB signal is high level at normal operation.
NG
Failure Point
1) Printer wire broke between I308 pin 125 and R437
3) I308 is failure.
OK
Check I308 pin 115,116,117,118
SPI signal.
NG
Failure Point
1) Printed wire broke between I308 pin 115, 116, 117,118 and I309 pin 1,2, 5,6.
2) I309 is failure.
OK
Failure Point
I308 failure.

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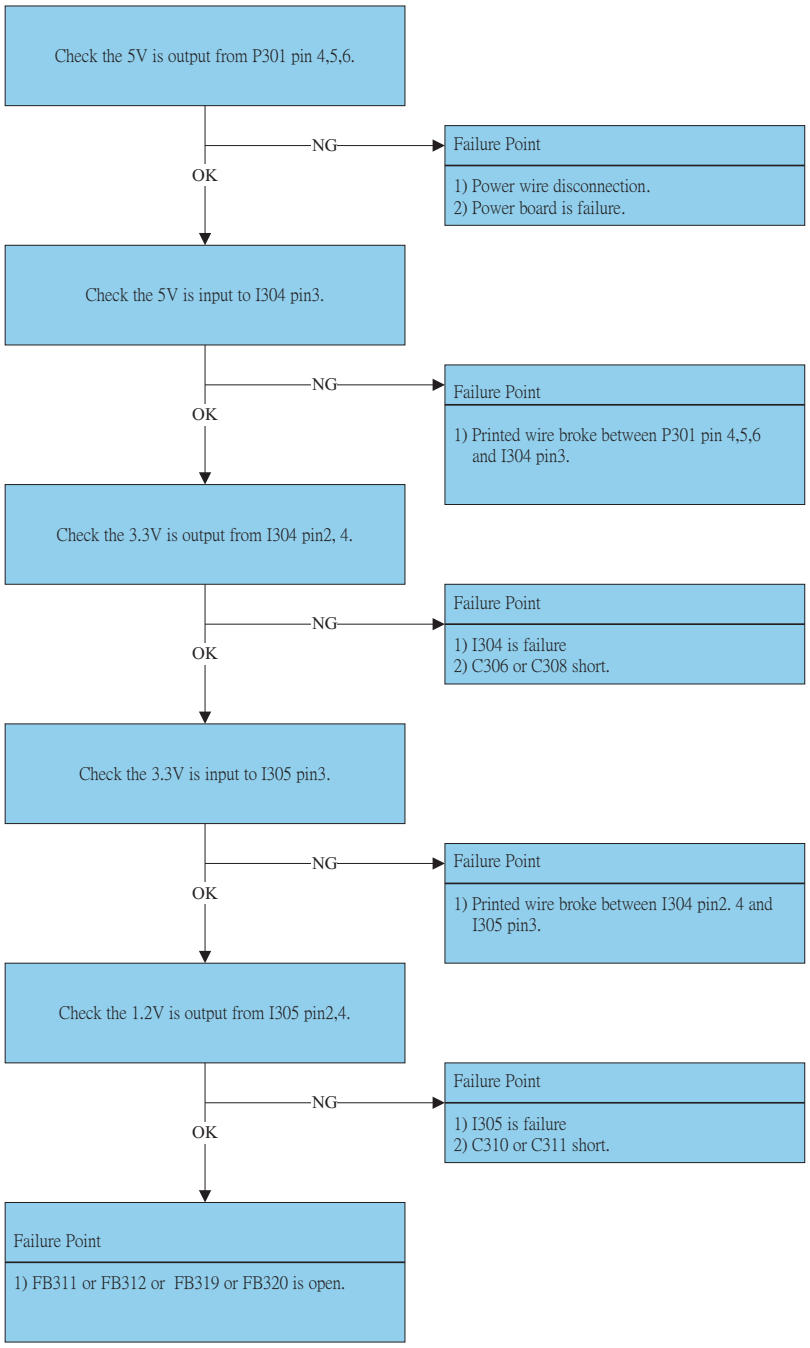
5.11 Checking the DC/DC converter circuit


Check the 5V is output from P301 pin 4,5,6.
NG
Failure Point
1) Power wire disconnection.
2) Power board is failure.
OK
Check the 5V is input to I304 pin3.
NG
Failure Point
1) Printed wire broke between P301 pin 4,5,6 and I304 pin3.
OK
Check the 3.3V is output from I304 pin2, 4.
NG
Failure Point
1) I304 is failure
2) C306 or C308 short.
OK
Check the 3.3V is input to I305 pin3.
NG
Failure Point
1) Printed wire broke between I304 pin2. 4 and I305 pin3.
OK
Check the 1.2V is output from I305 pin2,4.
NG
Failure Point
1) I305 is failure
2) C310 or C311 short.
OK
Failure Point
1) FB311 or FB312 or FB319 or FB320 is open.

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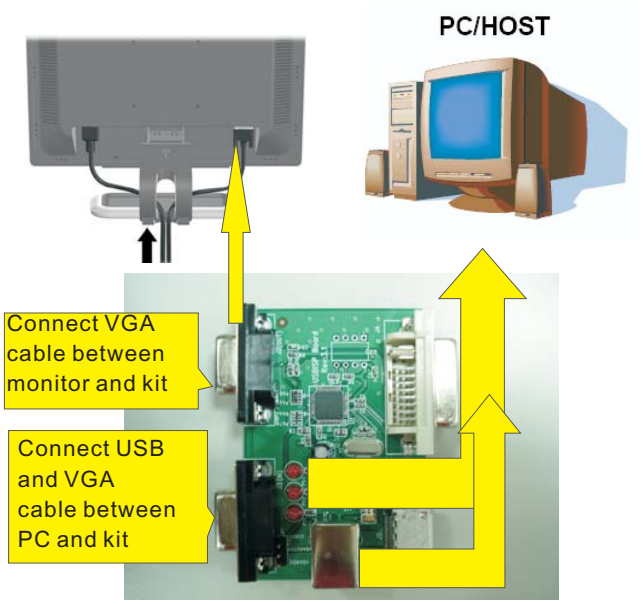
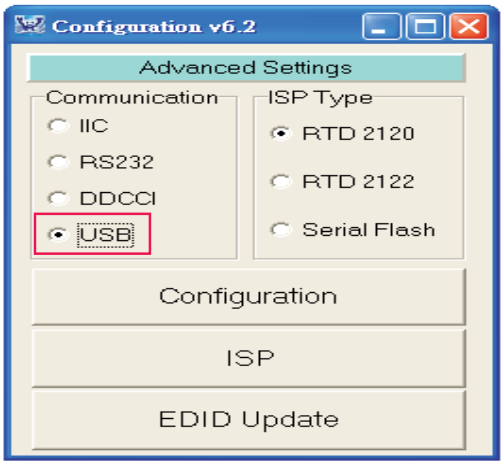
6.1 Hardware Configuration



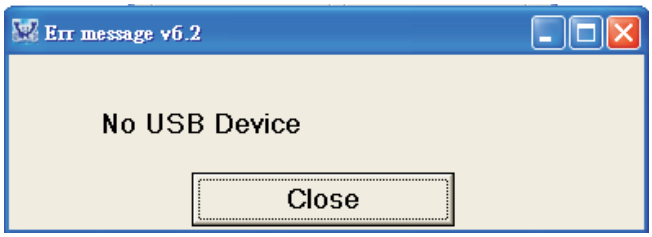
6.2 Realtek F/W Configuration:

Step-1 Launch the utility of “DebugTool_V6.2.exe”

Step-2 Select “USB”

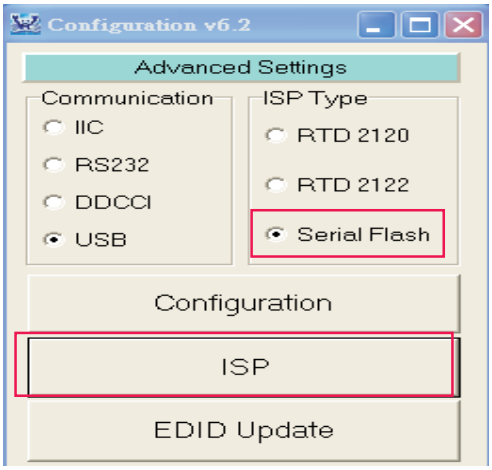


If it shows “No USB Device”, there is a problems with communication .you should confirm your USB device whether be detected by your PC device management or reconnect the USB cable again.



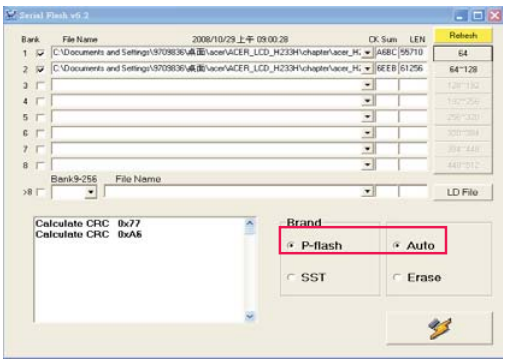
Step-3Select ISP type: Serial Flash

Select ISP icon.



Step-4 Follow up the red square indication

Select P-flash and Auto



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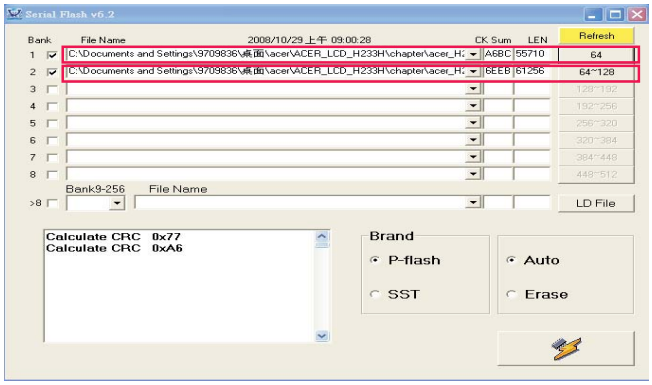
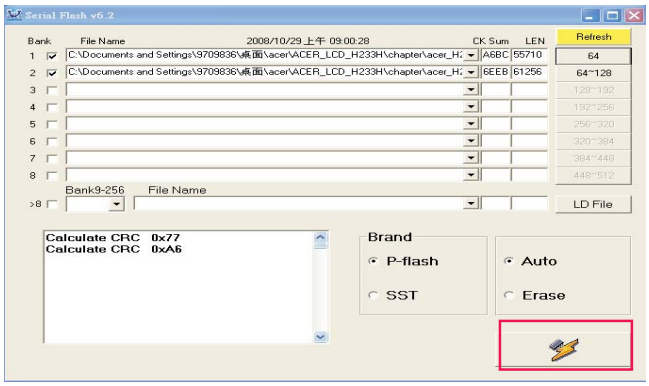
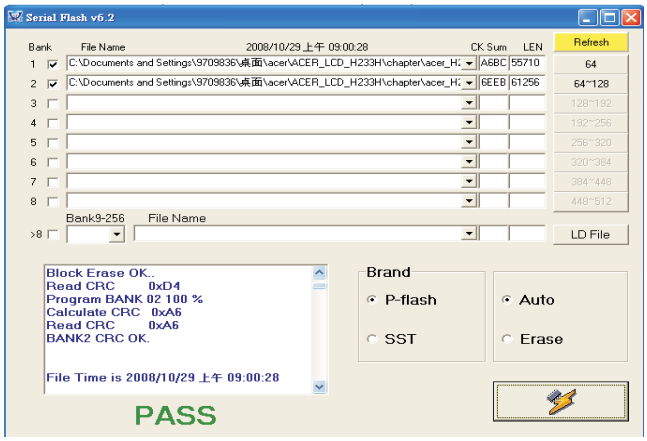
Step-5 Select “64K” icon to load firmware image. There are two HEX files. You only need to select “64K” to choose “H233H_EMEA.H00.hex” and “H233H_EMEA.H01.hex” will be loaded in “64~96” automatically.



Step-6Press button



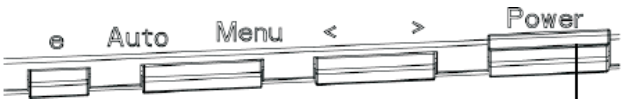
The screen will show “PASS”

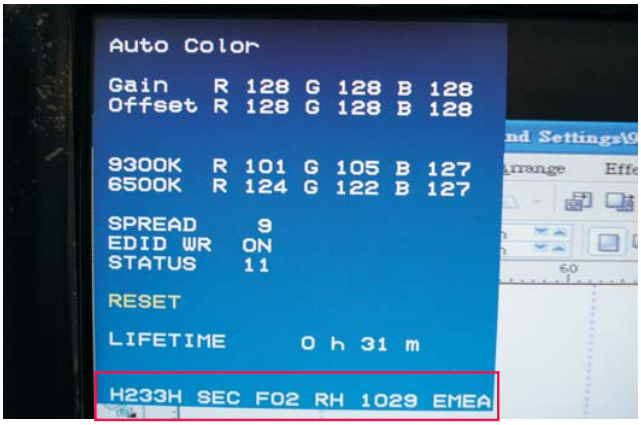


Check firmware version

Turn off the power,then press force on “ POWER ” and “ E ” button at the same time then press on “ MENU ”button to enter factory mode

Note: Please pay attention ,Don’t change any parameter which is measured by precise machine before shipping out




Auto Color
Gain R 128 G 128 B 128
Offset R 128 G 128 B 128
9300K R 101 G 105 B 127
6500K R 124 G 122 B 127
SPREAD 9
EDID WR ON
STATUS 11
RESET
LIFETIME 0 h 31 m
H233H SEC F02 RH 1029 EMEA

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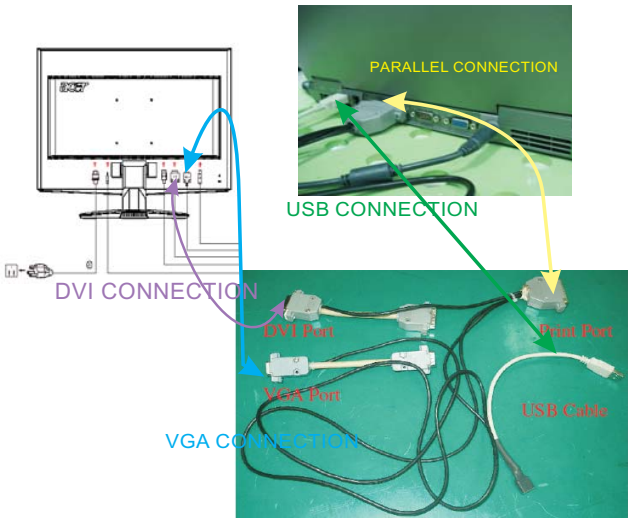
Hardware Configuration:

1. Connect the PRINTER PLUG of DDC FIXTURE with the printer port of Desktop PC.
2. Plug USB A PLUG of DDC FIXTURE to USB socket of Desktop PC
3 Use DVI cable connect to the DVI socket of monitor of DDC FIXTURE.
4 Take a video cable then connect the D-SUB PLUG and the D-sub socket of monitor.
5. Re-confirm all the connectors are connected well.

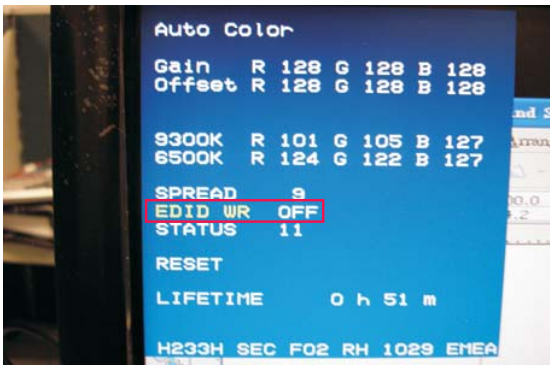


S1 Open EDID Write protection function

Turn off the power,then press force on “ POWER ” and “ E ” button at the same time then press on “ MENU ”button to enter factory mode.

Select “EDID WP” to let it be off.

Note: Please pay attention ,Don’t change any parameter which is measured by precise machine before shipping out.

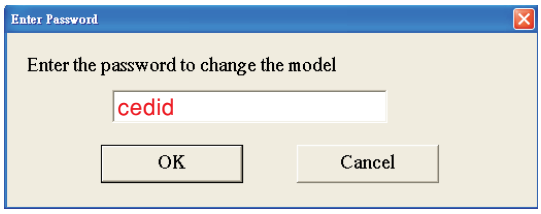

Auto Color
Gain R 128 G 128 B 128
Offset R 128 G 128 B 128
9300K R 101 G 105 B 127
6500K R 124 G 122 B 127
SPREAD 9
EDID WR OFF
STATUS 11
RESET
LIFETIME 0 h 51 m
H233H SEC F02 RH 1029 EMEA

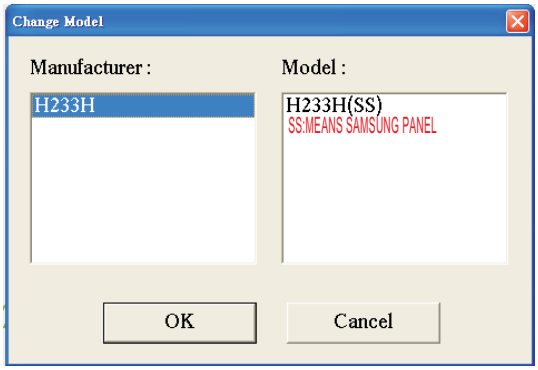
Writing EDID for VGA and DVI

S1 Chose the folder:” X233H-H233H-VGA&DVI “

Double click “ Acer_1A1D_RLT.EXE “

S2 Select Model: Key in password”cedid” then select model which one you want to write EDID code that it depends on panel type.





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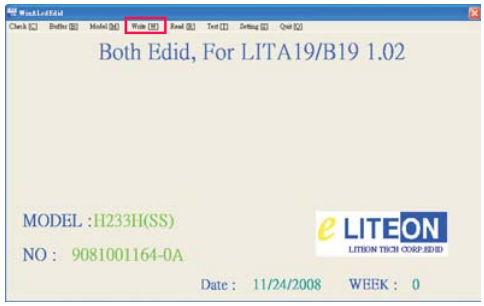
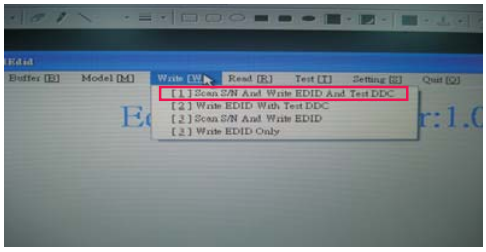
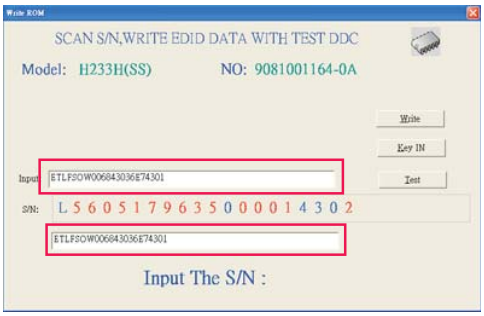
S3 Choose "WRITE" from menu then select "Scan S/N And Write EDID And Test DDC"

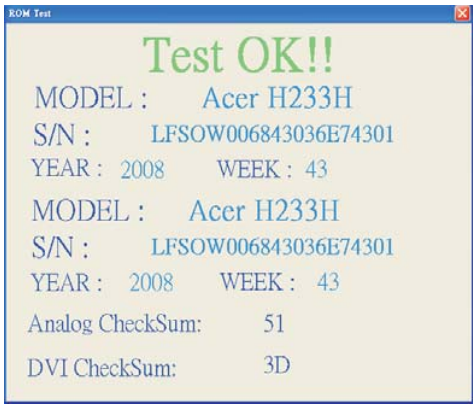




S4 Key in series number in the input column and input 2 column
Press write button after key in S/N

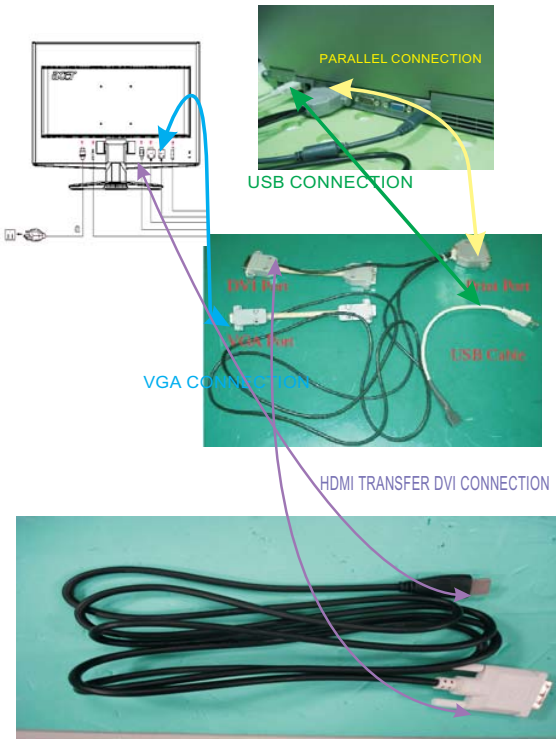

SCAN S/N,WRITE EDID DATA WITH TEST DDC
Model: H233H(SS) NO: 9081001164-0A
Write
Key IN
Test
Input
S/N:
L 5 6 0 5 1 7 9 6 3 5 0 0 0 0 1 4 3 0 2
Input The S/N :

S5 When EDID was written successfully that will show below message on the screen



Hardware Configuration:(Writing EDID for HDMI port's)

1. Connect the PRINTER PLUG of DDC FIXTURE with the printer port of Desktop PC.
2. Plug USB A PLUG of DDC FIXTURE to USB socket of Desktop PC
3 Use DVI transfer HDMI cable connect between of the DVI EXTENDING SOCKET and Monitor(Writing EDID for HDMI port)
4 Take a video cable then connect the D-SUB PLUG and the D-sub socket of monitor.
5. Re-confirm all the connectors are connected well.



Entering Factory mole to let "EDID WP" be off
Writing EDID procedure
S1 Choose the folder "X233H-H233H-HDMI"
Double click " AcerHDMI_RLT "
The writing process same as writing VGA and DVI process.

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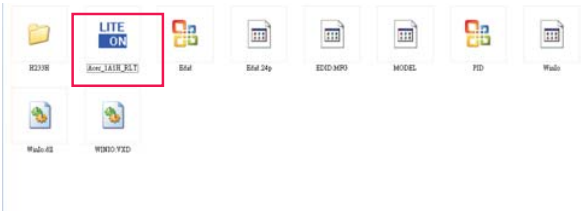
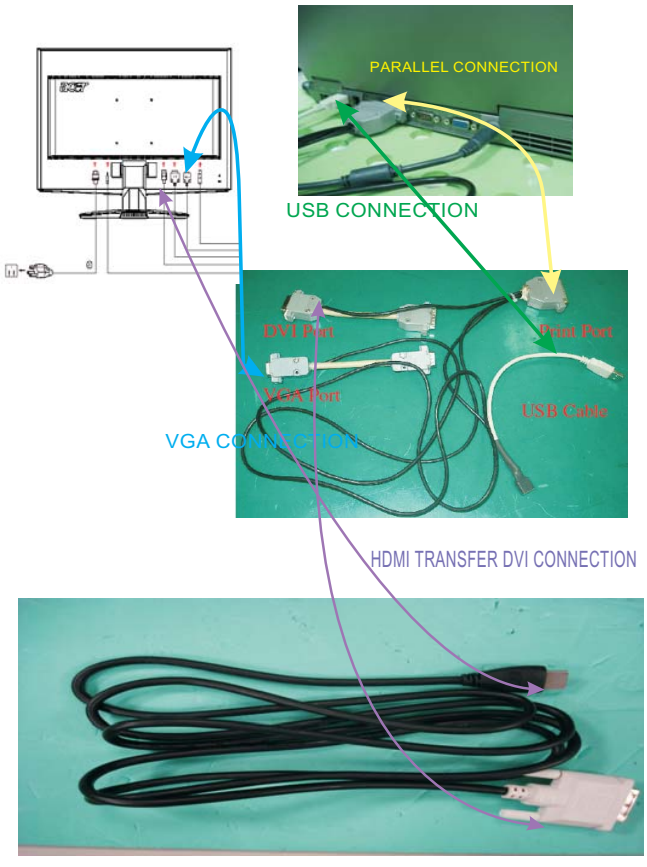
S5 When EDID was written successfully that will show below message on the screen

Entering Factory mole to let “EDID WP” be off
Writing EDID procedure for 1A1H
S1 Choose the folder “X233H-H233H-1A1H”
Double click “ Acer_1A1H_RLT “
The writing process same as writing VGA and DVI process.



1A1H
Hardware Configuration:

1. Connect the PRINTER PLUG of DDC FIXTURE with the printer port of Desktop PC.
2. Plug USB A PLUG of DDC FIXTURE to USB socket of Desktop PC
3 Use DVI transfer HDMI cable connect between of the DVI EXTENDING SOCKET and Monitor
4 Take a video cable then connect the D-SUB PLUG and the D-sub socket of monitor.
5. Re-confirm all the connectors are connected well.



S5 When EDID was written successfully that will show below message on the screen

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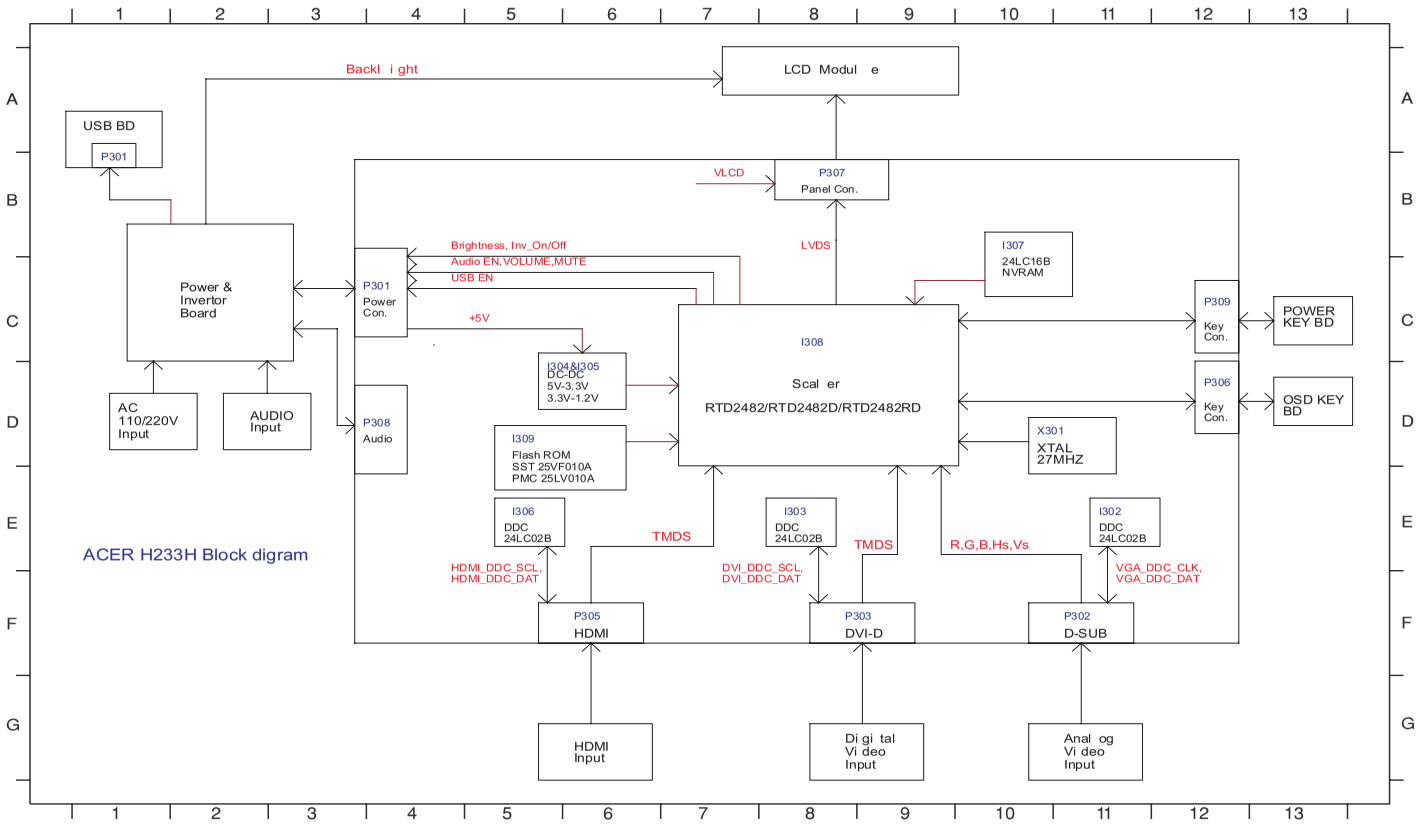
8. BLOCK DIAGRAM AND SCHEMATIC

8.1 BLOCK DIAGRAM



PCB No.

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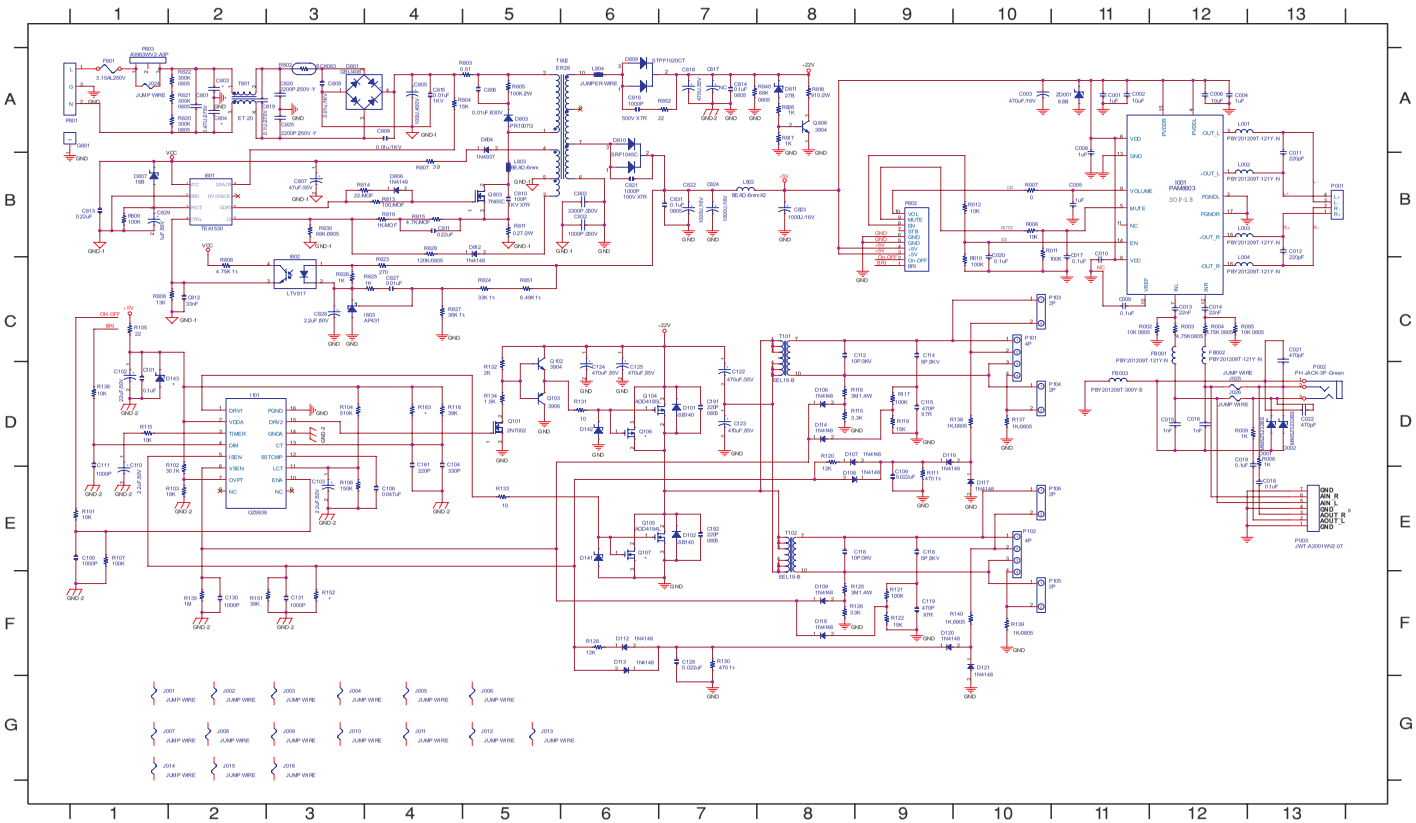
8.2 ACER_LCD_H233H_SCHEMATICS_POWER BOARD



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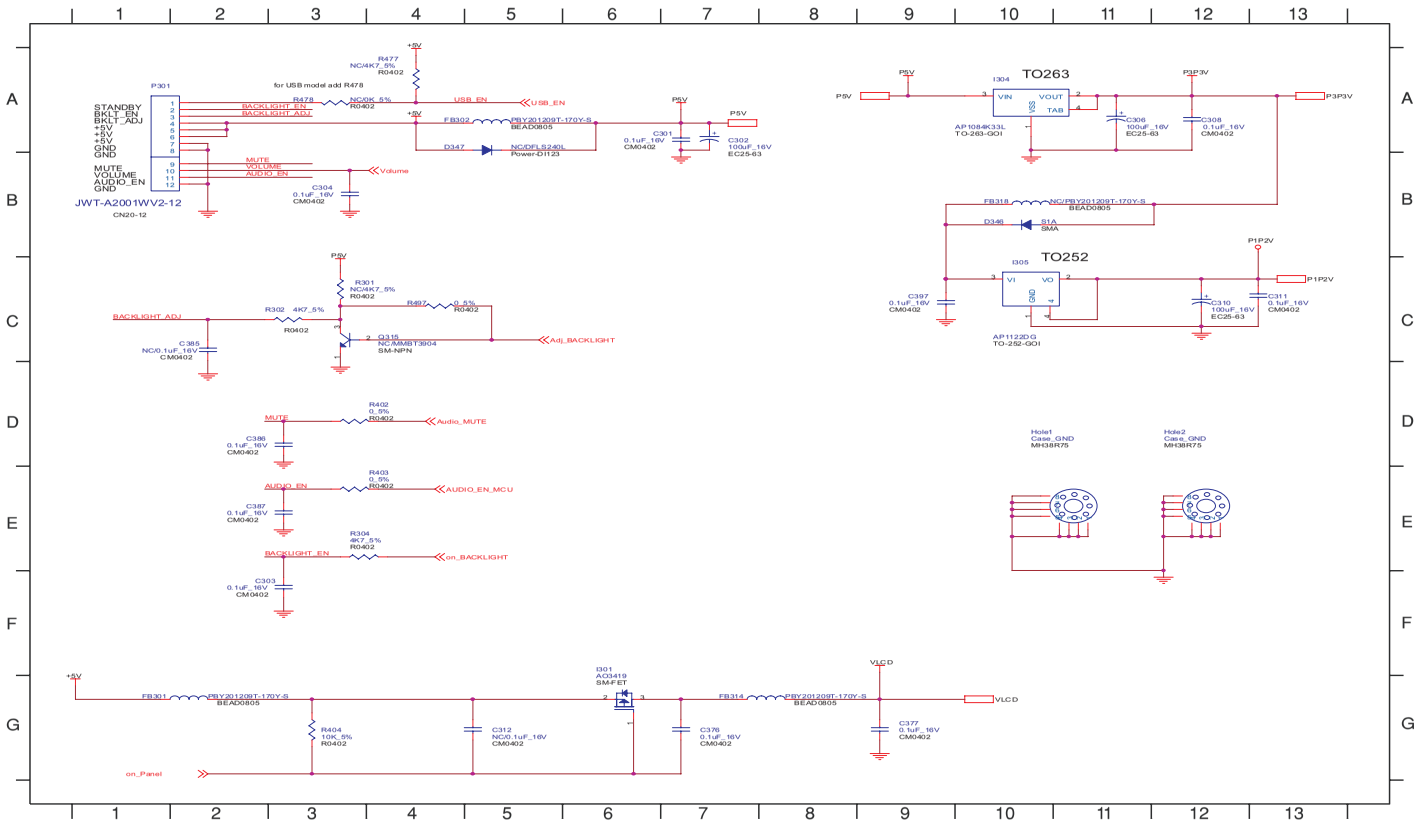
8.3 ACER_LCD_H233H_SCHEMATICS_INTERFACE_BD_POWER



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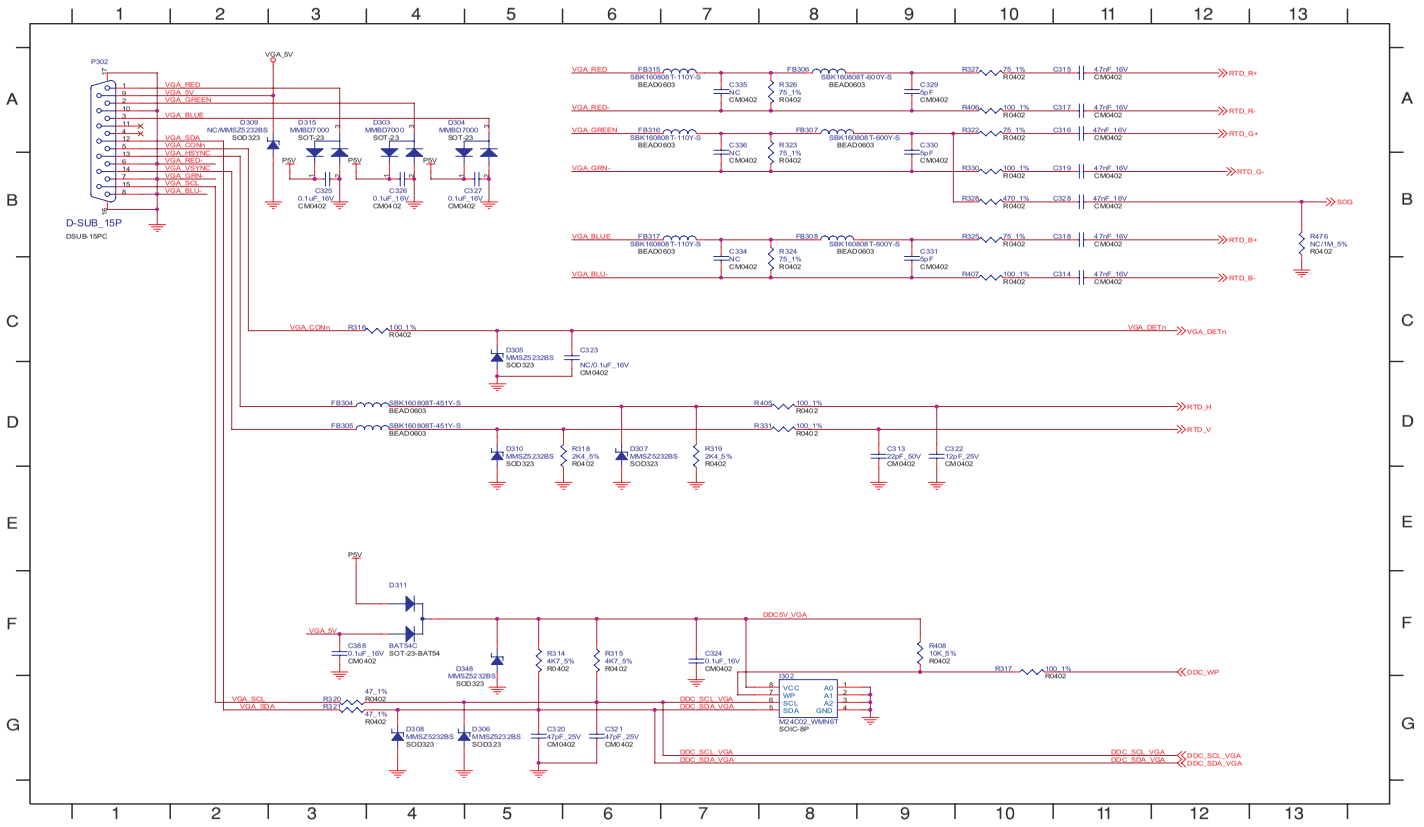
8.4 ACER_LCD_H233H_SCHEMATICS_INTERFACE_BD_VGA & DDC INPUT



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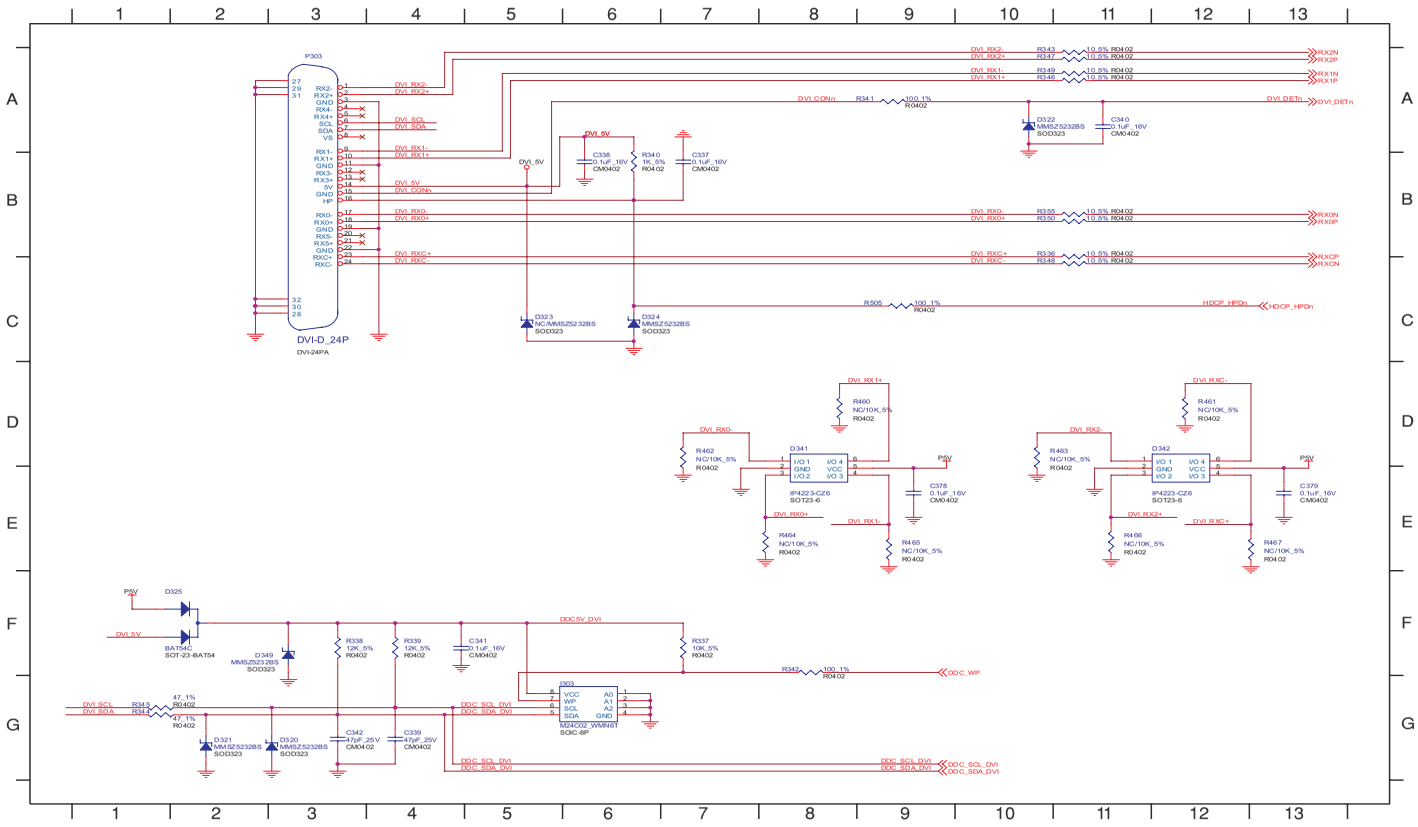
8.5 ACER_LCD_H233H_SCHEMATICS_INTERFACE_DVI & DDC INTERFACE



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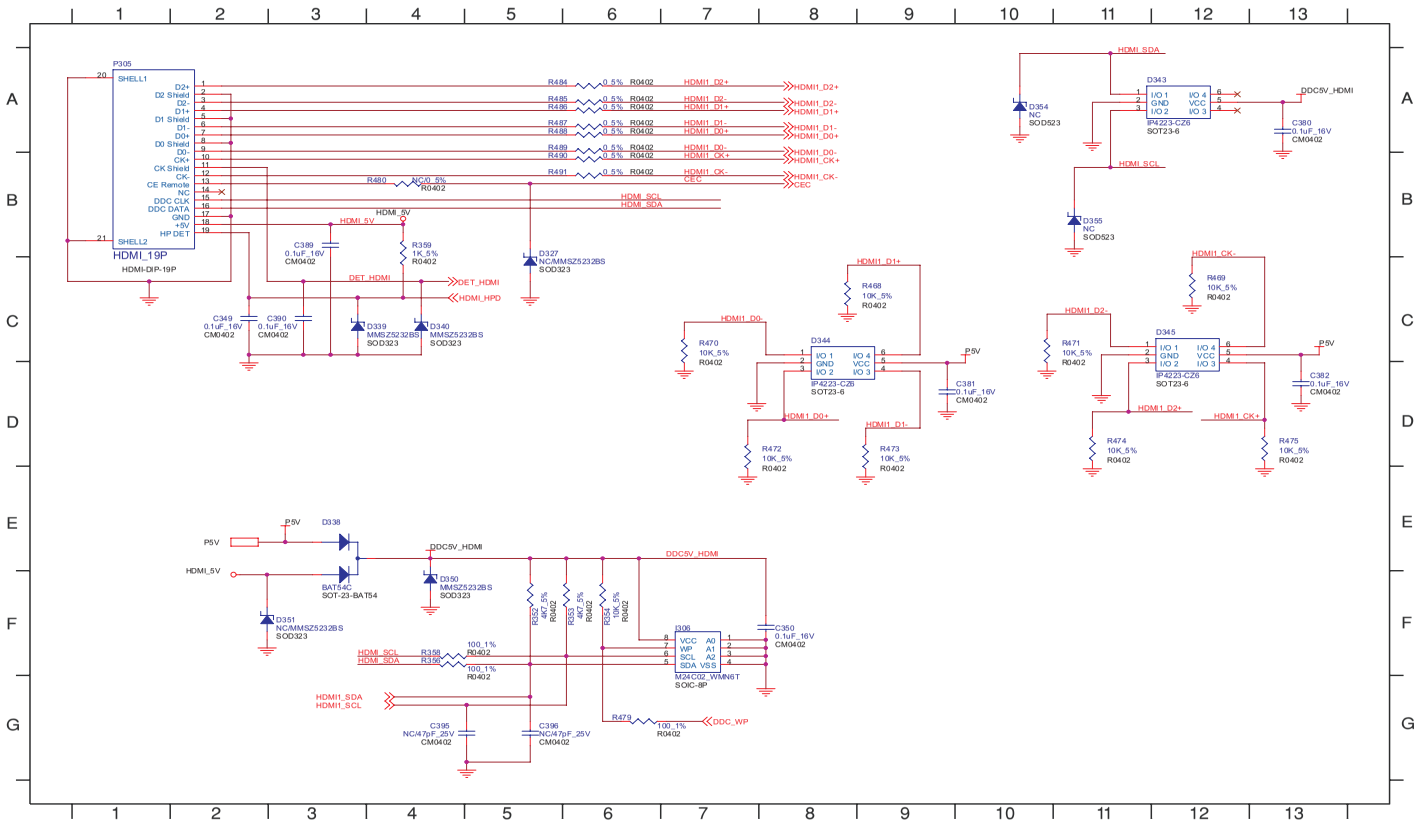
8.6 ACER_LCD_H233H_SCHEMATICS_INTERFACE_BD_HDMI



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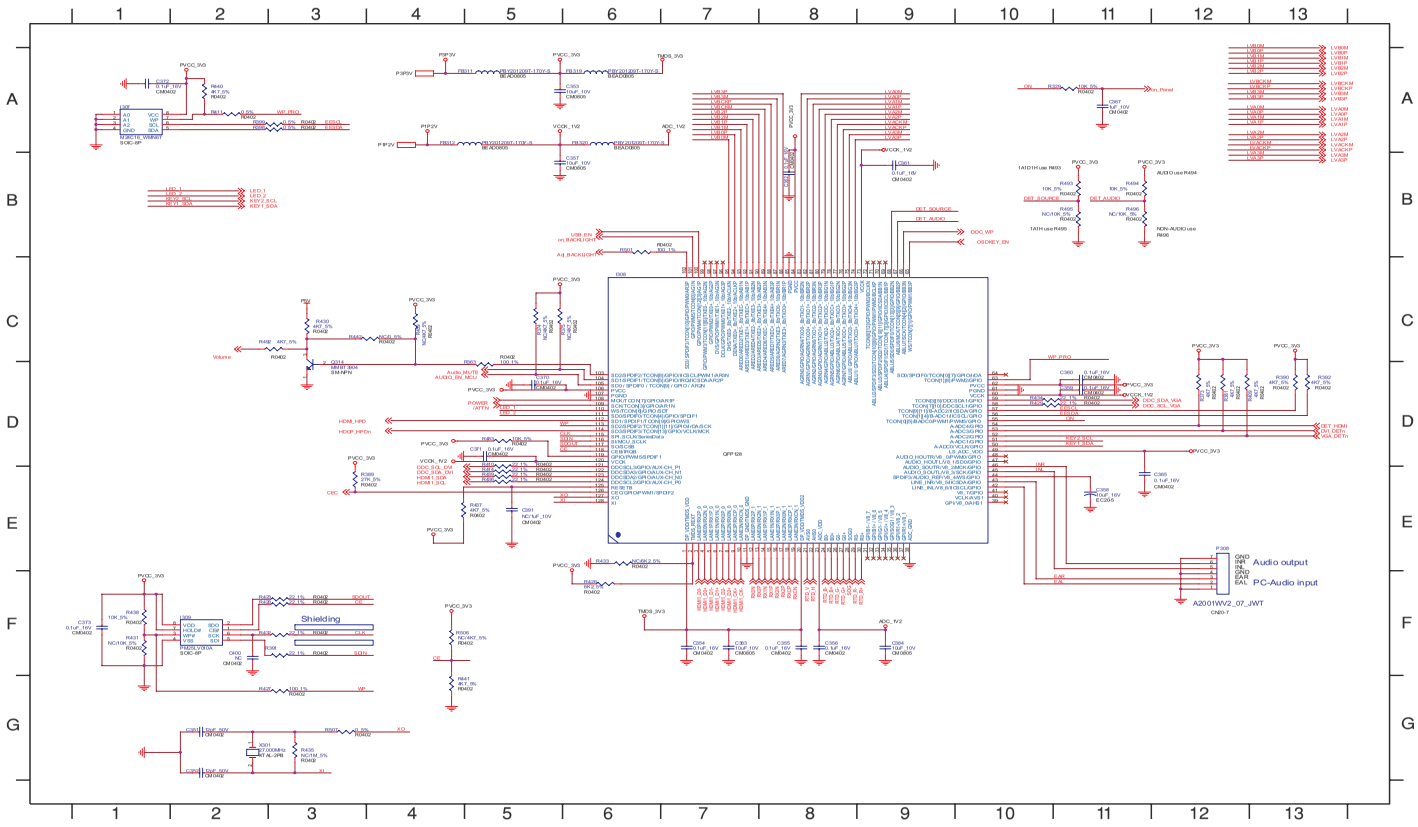
8.7 ACER_LCD_H233H_SCHEMATICS_INTERFACE_BD_SCALER/RTD2482D



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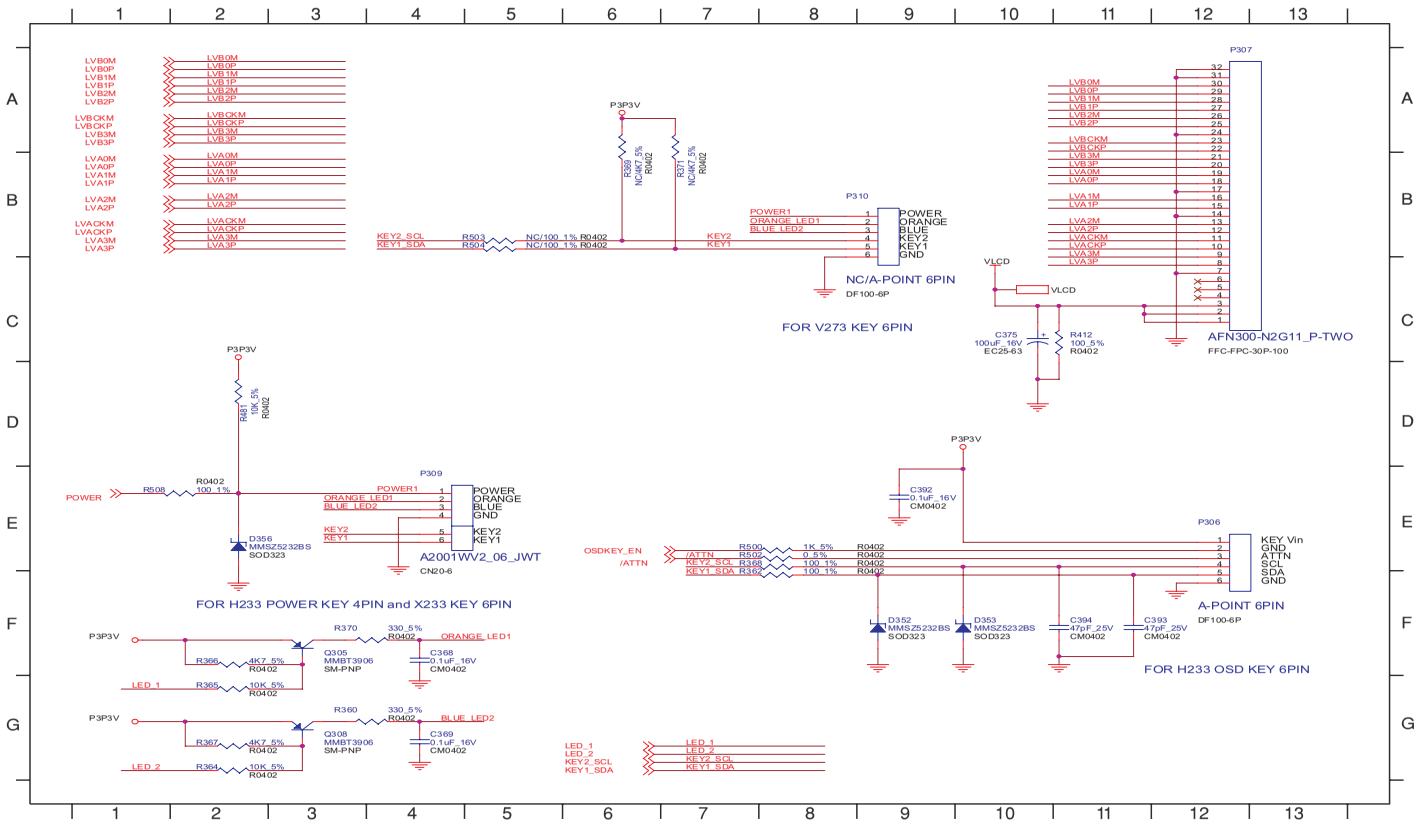
8.8 ACER_LCD_H233H_SCHEMATICS_INTERFACE_BD_PANELINTERFACE & KEY



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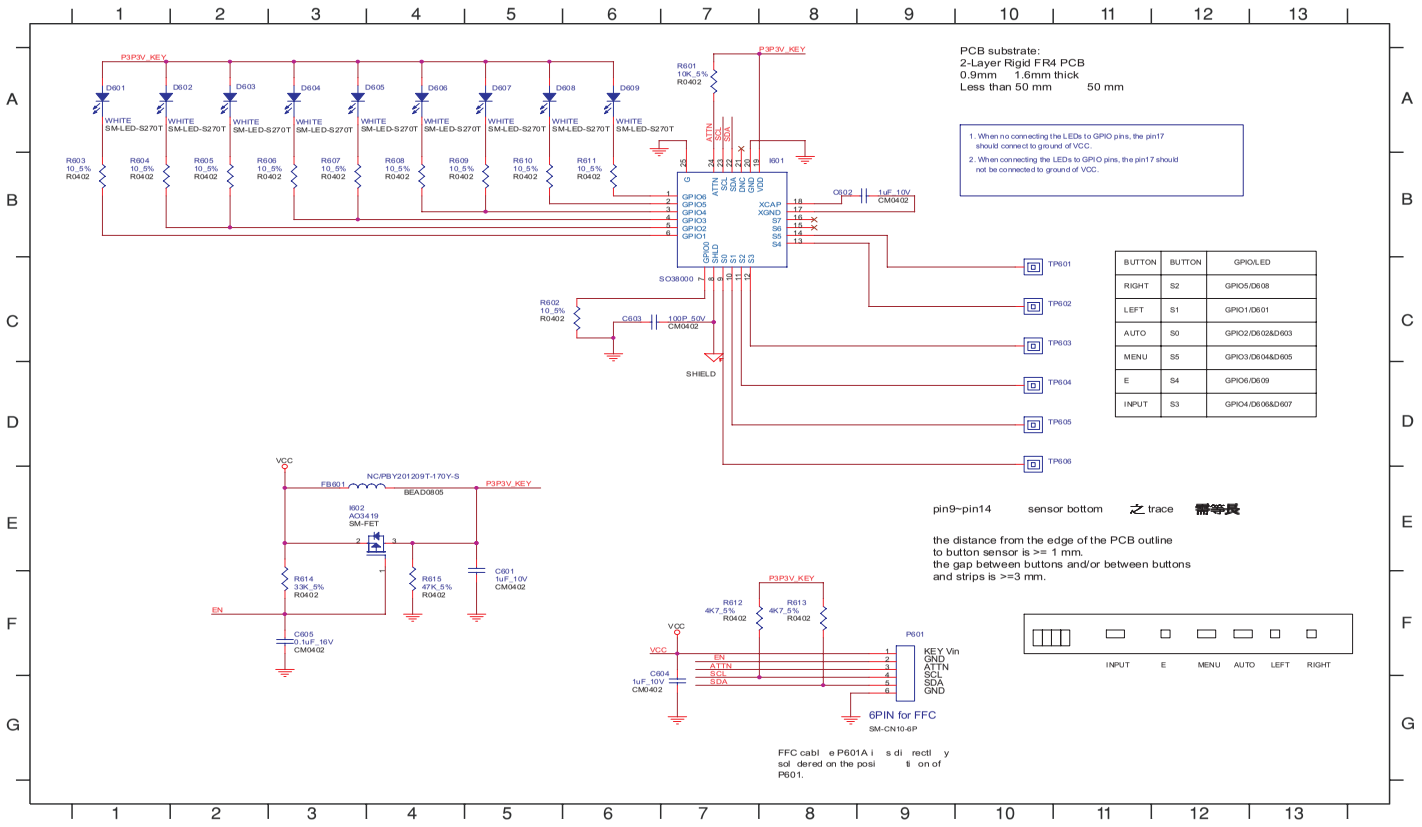
8.9 ACER_LCD_H233H_SCHEMATICS_OSD KEY_BD



BUTTON	BUTTON	GPIO/LED
RIGHT	S2	GPIO5/D608
LEFT	S1	GPIO1/D601
AUTO	S0	GPIO2/D602&D603
MENU	S5	GPIO3/D604&D605
E	S4	GPIO6/D609
INPUT	S3	GPIO4/D606&D607

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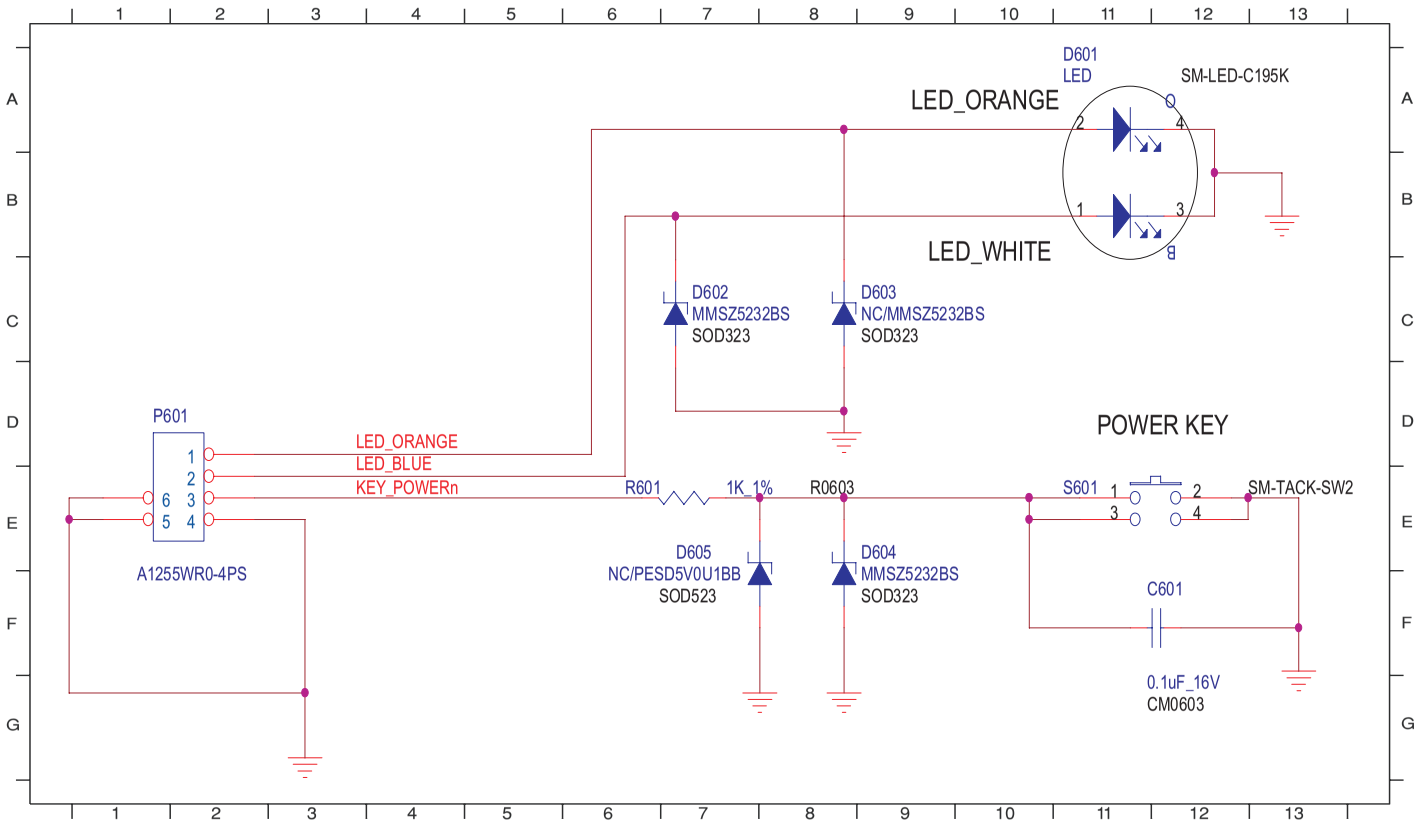
8.10 ACER_LCD_H233H_SCHEMATICS_POWER KEY_BD



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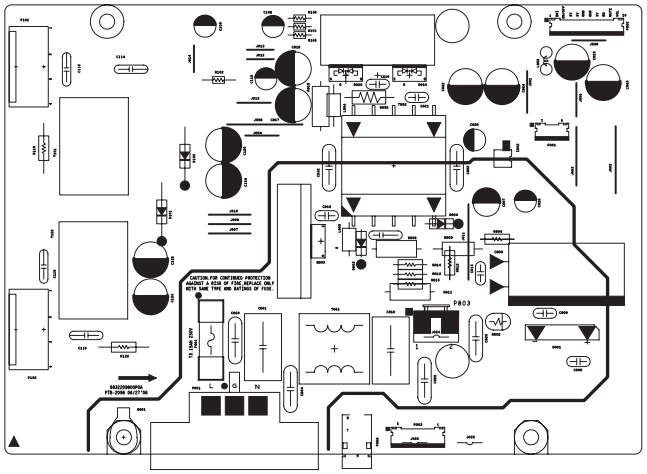
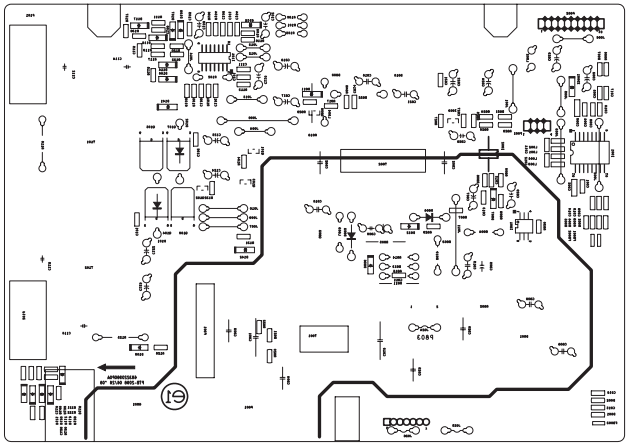
8.11 ACER_LCD_H233H_LAYOUTS_POWER BOARD

POWER BOARD - TOP SILK



POWER BOARD - BOTTOM SILK



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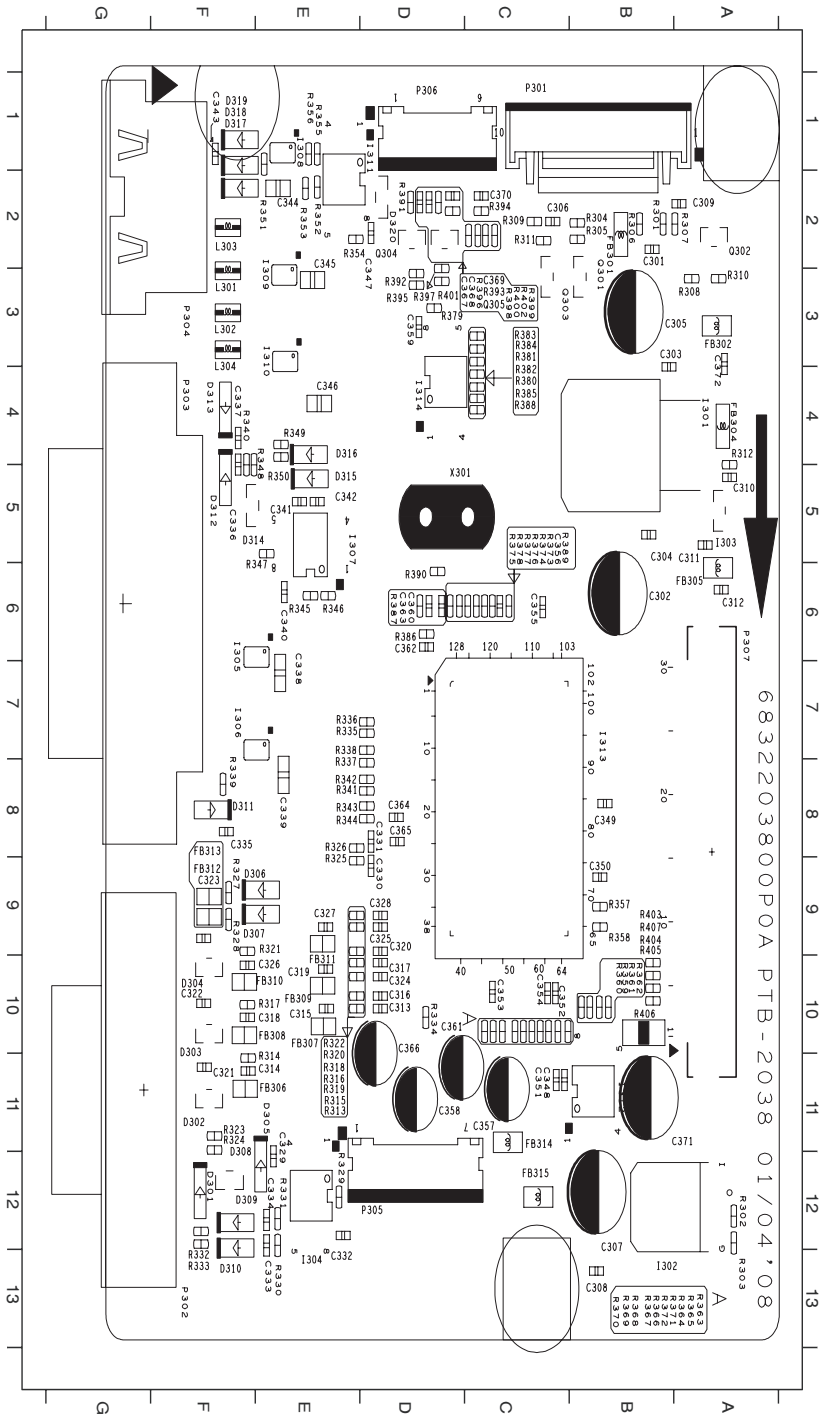

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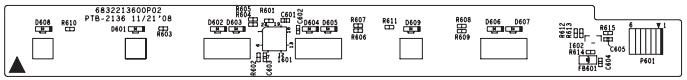
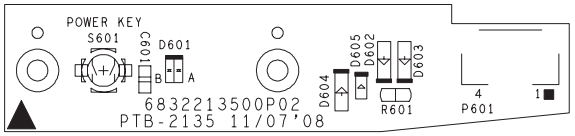
8.13 ACER_LCD_H233H_LAYOUTS_OSD KEY BOARD AND POWER KEY BOARD

OSD KEY BOARD



POWER KEY BOARD



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